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TAPPI Delaware Section Meets

Allen Abrams, President Elect of the Technical Association of the Pulp and Paper Industry, Speaks on the Functions of TAPPI and How They Can Be Fulfilled—Dr. Otto Kress, Director of the Institute of Paper Chemistry Describes the Work of the Institute—Dr. Curran Speaks on Paper Section of Forest Products Laboratory

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 23, 1932—On Friday evening, February 19 the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers Club in Philadelphia. The date of the meeting was selected to provide the section members an opportunity to have as their guests some of the members of the Association who came from distant points to attend the annual meeting in New York.

Following a dinner, those present, numbering about seventy, adjourned to the engineering auditorium where under the chairmanship of W. R. Maull of the Dill & Collins Company, the formal program was presented.

President Abrams Speaks

The first speaker was Allen Abrams of the Marathon Paper Mills Company, Rothschild, Wis., newly elected president of the Technical Association, who talked on "The Functions of TAPPI and How They Can Be Fulfilled." In serving the great billion dollar paper industry the association acts in an advisory capacity to stimulate manufacturing developments.

The proper training of men for the industry has received much attention from the association. Mr. Abrams told about the survey being conducted jointly by the TAPPI education committee and the Federal Board of Vocational Education to determine job requisites. The work being done to prepare trained men for the industry at Syracuse, Orono and Appleton was mentioned. Another function of the association is to develop standard methods, specifications and recommended manufacturing practices. This year the association will issue to members a valuable manual which will include the standards adopted. The main work of the association, Mr. Abrams stated, must be done by the divisions and committees. Participation in work of this kind enables a member to advance rapidly in the industry by becoming better known. Many men can ascribe an appreciable part of this progress to prominence derived from association work. Any member can and should serve on a committee.

Dr. Otto Kress Makes Remarks

The second speaker was Otto Kress, technical director of the Institute of Paper Chemistry at Appleton, Wis., and chairman of the Lake States Section of the Technical Association. Doctor Kress prefaced his remarks concerning the Institute with a few comments on his local section which holds monthly meetings attended regularly by more than 100, some of whom travel one hundred or more miles to attend. Local sections are distinctly worth while and should do much to build up the Technical Association.

The Institute started with three students and has grown considerably. There is no other institution giving exactly the type of training that a man needs to get anywhere in the pulp and paper industry. High scholastic standards are maintained. Last year only 14 out of 60 candidates were admitted and recently 9 of the students were dropped. It costs $90,000 annually to operate the Institute and the present staff consists of 13 teachers, all of whom are particularly well qualified. Doctor Kress showed a number of slides illustrating the physical aspect of the Institute. The three functions of the school are education, research and the maintenance of a library.

Dr. Curran Outlines Laboratory Objectives

The last speaker on the program was C. E. Curran who is in charge of the Pulp and Paper Section of the Forest Products Laboratory, Madison, Wis. Doctor Curran outlined the objectives of the Laboratory and reviewed some of the accomplishments of its twenty years of service. Lantern slides were used to show pictures of the buildings and equipment at Madison.

The interest shown by those present indicated that the program was worth while and another successive and successful program was added to the section's record and should do much to assure the section's immediate future.

Field Work on Pulp Completed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 24, 1932.—All of the field work that is to be done has been done in connection with the McNary resolution calling upon the United States Tariff Commission for an investigation of the effect of the depreciation in value of foreign currencies on importations of pulp into this country.

It is understood that the report will be placed before the Commission by its experts in a short time and unless something turns up that is not now foreseen it will be sent to the Senate by March 15 or before.

Activities of Fox River Valley Paper Mills

Thilmany Paper Bag Plant to be Moved From Waukegan, Ill., to Kaukauna, Wis.—Brick and Concrete Building to be Erected and Machinery Installed — New Plant Established at Merrill to Manufacture Water-Proof Specialty Products

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., February 22, 1932—One more big step in the centralizing of manufacturing operations of the Thilmany Pulp and Paper Company, Kaukauna, Wis., was announced last week when it became known that its bag mill will be moved to its home city from Waukegan, Ill., about June 1. A contract has been awarded to the Permanent Construction Company, the contractors engaged on other extensive enlargements, to erect another new building of brick and concrete to house this department. Approximately 110 men will be employed on the building project so as to complete it as early as possible. About 50 men and 25 women will be given employment in the bag mill when it opens, and eventually the force will be about 100.

It was rumored that the company would use its tissue branch at Appleton, Wis., for the bag mill, but the present announcement indicates all operations will be centered at Kaukauna. Machinery of the tissue division is being moved from Appleton to new buildings provided at Kaukauna. With the addition of one new paper machine, the company will be able to absorb practically the entire output of its pulp mills.

Menasha Mill Resumes Operations

After being closed down for about ten weeks, the Menasha Paper Corporation's mill at Menasha, Wis., has resumed operations. The mill will not adopt a full schedule immediately, but probably will be on a five-day week basis very soon. It has two machines with a daily capacity of 30 tons, with straw board as its principal product. Extensive repairs to the building and machinery were recently completed.

Marathon Carton Division Active

The number of employees at the Menasha Products Company, Menasha, Wis., Carton Division of the Marathon Paper Mills Company, has been increased approximately ten per cent within the last year. The plant now has 769 employees, as compared with 698 a year ago. By effecting economies in manufacture and readjustment of salaries and wages, the company is in a favorable operating position, despite heavy declines in prices. Sales efforts have been increased materially so as to bring about expansion of operations.

Tariff on Pulp Asked

A tariff on foreign imports of pulpwood and commercial pulp will be urged upon Congress by the Minnesota Arrowhead Association, according to a decision of a special committee meeting recently at Duluth, Minn. The protection is desired to protect farmers marketing their pulpwood, and to protect pulp mills against competition which affects their market. The committee points out that depreciated foreign currencies have enabled tramp steamers to deliver pulp at the Atlantic seaboard for much less than it can be shipped by rail from mills in the middle west.

Syl-Mac Paper Products Co. Formed

Using an entirely new water-proofing process, the Syl-Mac Paper Products Company, has been organized at Merrill, Wis., and has established a plant in an old public school building to manufacture an extensive line of specialty products. The owners are Sylvester H. Killishek, inventor of the formula, and John A. McDonald, both former residents of Neenah, Wis. They expect to employ twenty persons at the start and are planning to open a second plant making floor coverings and employing twenty more. Paper will be purchased largely from mills at Neenah and Menasha. Practically all of the machinery has been made at Merrill and is being installed.

Products to be marketed under the trade-mark Macsylite will include sanitary, washable, water-proof coverings for tables, shelves, floors and walls and an innovation in price tags. The process includes water-proof treatment of paper by a special formula so it will resist boiling water, chemicals and the like. A film of one-ten-thousandth of an inch accomplishes this. The coating does not penetrate the paper at all. Decorative effects will be accomplished by applying of paint pigment in a variety of colors. The floor covering is said to be more durable than linoleum and as tough as buckskin. Later a new washable brand of wall paper will be developed. The surface remains impervious to wear for years, Mr. Killishek says.

The process was developed by Mr. Killishek while employed as engineer for a hospital at Neenah. He made up a formula to water-proof gaskets for pipe connections while making repairs. A bottle was accidentally spilled on paper, the effect it had attracted his attention, and he began experimenting until he had the formula on a commercial basis.

A corporation capitalized at $20,000 is to be formed, with all of the stock owned by the two partners. R. E. Sanders and F. H. Zahrt, of Neenah, Wis., will act as sales agents. Samples made up on bond paper will be used for sales correspondence. It is believed a large market will be created for Wisconsin made paper in this new field.

Power Dam Level Raise Opposed

Determined opposition faced the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., at a hearing last week at Stevens Point, Wis., conducted by the Wisconsin Public Service Commission on the company's application to raise the level of its power dam on the Wisconsin River at Stevens Point two feet. The court room was packed with farmers, town and city officials, all of whom were opposed to granting the permit. They contended their lands will be subjected to serious flooding, and that highways already are hampered by the river situation. A decision will be made by the commission after going over all the evidence submitted. Extensive improvements costing about $100,000 were completed recently by the Consolidated company in anticipation of the raised level to produce greater power for its Stevens Point mill.

Kimberly-Clark Officers Sued

F. J. Sensenbrenner, president, and J. C. Kimberly, vice president, of the Kimberly-Clark Corporation, Neenah, Wis., are named defendants in a suit brought by Edgar R. Thom, of Detroit, Mich., to recover $140,000 alleged to be due by the sale of stock of the corporation. Mr.

Thom, representing heirs of the late Peter R. Thom, paper mill official, alleges the owners of the stock were induced to sell it at a much lower price than it was worth, and that the officers of the company withheld information that would determine its real value. The case has not been decided.

News of the Industry

Lower freight rates on bituminous coal transported into the State are asked of the Wisconsin Public Service Commission by 25 Wisconsin paper mills. A hearing on the application indicated claims of the mills that the present rates are unreasonable and discriminatory. The rates sought to be reduced are on coal transported from docks on Lakes Superior and Michigan.

James C. Kimberly, president of the Neenah Paper Company, and vice president of the Kimberly-Clark Corporation, Neenah, Wis., last week announced that he was moving his legal residence from Neenah to Washington, D. C. He declared the exorbitant income taxes imposed by Wisconsin, and the growing total of taxes from year to year led him to leave the State and go to Washington "where there is not the same soak-the-rich spirit."

Mr. Kimberly paid a State income tax of $21,453.02 for 1931 on an income of $312,936. The tax for 1932 is to be doubled by a decision of a special session of the state legislature just closed, and deduction of capital losses or dividends on which taxes already have been paid by a corporation are not to be permitted.

Another reaction to the increased taxes was expressed by E. A. Meyer, president of the Badger Paper Mills, Peshtigo, Wis. Employees had been giving liberal amounts for relief of unemployed and were instructed to cease making such gifts, since the State is levying taxes of $7,000,000 for this purpose and elected to take care of the relief in lieu of private donations.

After twenty years of operation without a fatal accident, the Thilmany Pulp and Paper Company, Kaukauna, Wis., had its third accidental death of employees in six months about a week ago when George Reyba was drawn into the machinery of the wood room while repairing a conveyor. He died from suffocation before he could be extricated. It is said he neglected to put on the safety switch before beginning his work, and another employee started the machine unaware of Reyba's presence on the conveyor.

Sorg Paper Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 23, 1932—The annual meeting of the directors of the Sorg Paper Company was held in Middletown last week. J. A. Aull was re-elected to be president of the concern; L. C. Anderson, M. T. Hartley and A. F. Smith, vice-presidents; Donald Driscoll, secretary, and H. C. Johnson, treasurer. All members of the board of directors were re-elected.

It is understood that the company has been doing a fairly good business, considering the condition of the trade generally, and that the officer's view the future with satisfaction. There are indications of reviving trade in various sections of the Miami Valley.

New Agent for Artesian Ledger

Artesian Ledger is now being stocked by the Dayton House of the Cincinnati Cordage and Paper Company, Dayton, Ohio, who have just been appointed distributors for that territory. Artesian Ledger is a good quality, rag content ledger, made with Whiting Springs water by the Whiting-Plover Paper Company, Stevens Point, Wis.

Paper and Pulp Production in December

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, the daily average of total paper production in December decreased 7.9 percent under November and 9.1 per cent under December 1930. The daily average wood pulp production in December was 8.6 per cent below November 1931, and 9.2 per cent below December 1930.

Compared with December a year ago, the daily average production registered a decrease in the following grades: News print, uncoated book, paperboard, wrapping, tissue, writing, and hanging papers. Compared with November 1931, the following percentage decreases were registered in the daily average production: News print, 3.9 per cent; paperboard, 15.7 per cent; wrapping, 10.8 per cent; tissue, 5.9 per cent; writing, 3.4 per cent; hanging, 7.4 per cent; and building, 24.7 per cent.

The twelve month's cumulative total of production of paper was 9.2 per cent below the corresponding period in 1930 while shipments were 8.6 per cent smaller than a year ago. News print, bag, writing and building papers have shown improvement while uncoated book, paperboard and hanging papers showed practically no change in production at the end of the twelve-month period as compared with the end of the eleven months in 1931.

The twelve months' cumulative total of wood pulp production for 1931 was reported as 14.3 per cent below the level of the same period in 1930.

Total shipments of wood pulp to the outside market were 31.4 per cent below the level of the twelve months' total of 1930. Bleached sulphite, mitscherlich sulphite and kraft pulp shipments to the open market were greater than in the twelve months of 1930.

Total wood pulp inventories showed an increase, and at the end of December were 9.6 per cent above the level of December 1930. All grades, excepting bleached sulphite, kraft and soda pulp, showed inventories above the level of December 1930.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF DECEMBER 1931

Grade	Production tons	Shipments tons	Stocks on hand end of month — tons
News Print	93,861	93,550	32,709
Book Uncoated	68,002	70,007	44,416
Paperboard	121,200	118,350	61,016
Wrapping	33,178	34,631	43,849
Bag	11,642	11,247	5,460
Writing, etc.	19,391	19,219	43,369
Tissue	4,935	4,979	3,903
Hanging	3,255	2,726	3,781
Building	3,097	2,971	3,525
Other grades	12,576	11,739	14,817
Total All Grades Dec. 1931	371,137	369,419	256,845
Total All Grades 12 Mos. 1931	5,137,138	5,139,089	256,845
Total All Grades 12 Mos. 1930	5,657,702	5,624,705	268,764

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF DECEMBER 1931

Grade	Production tons	Used during month— tons	Shipped during month— tons	Stocks on hand end of month— tons
Groundwood	70,692	68,282	346	56,747
Sulphite, News Grade	24,148	23,682	153	6,911
Sulphite, Bleached	15,937	14,002	2,316	3,154
Sulphite, Easy Bleaching	2,105	1,851	266	1,494
Sulphite, Mitscherlich	2,854	1,843	550	2,252
Kraft Pulp	21,594	17,381	4,051	3,541
Soda Pulp	14,726	13,394	1,580	2,618
Other Grades	460	371	31	176
Total All Grades Dec. 1931	152,516	140,806	9,293	76,803
Total All Grades 12 Mos. 1931	1,997,531	1,823,674	166,326	76,803
Total All Grades 12 Mos. 1930	2,329,714	2,081,533	242,490	70,089

P. R. Jack Joins Mersey Board

Peter R. Jack, former chairman of Halifax Harbor Commissioners, has been appointed a director of the Mersey Paper Company, Liverpool, N. S., C. H. L. Jones, president, announced this week

Chicago Paper Market Exhibits Firmer Trend

Consumers Urged by Paper Executives to Purchase at Current Favorable Quotations, Against Prospective Early Advance—Fine Paper Section Continues Fairly Active—Kraft Wrapping Paper and Bags Display Stronger Undertone

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 20, 1932—Although many jobbers and manufacturers are in the East this week there are sufficient of them left to report on business to indicate that the general strengthening in the stock and commodity markets during the past seven days has been reflected in the paper business. A more optimistic tone is noted and there are a number of paper executives in this territory who are insisting that the bottom has been reached in paper prices and who are urging buyers to take advantage of the favorable prices against an early advance. A better condition in the news print markets, at least an understanding of what can and cannot be done, has helped matters.

The kraft and bag market continues to be fairly strong as far as the manufacturers are concerned. A number of the jobbers here bought considerable kraft at the previous low prices and are working against a "price minded" market to unload this surplus and still keep the market in orderly shape. Fine papers continue to remain fairly active as the Spring season advances and orders, though fairly small, are indicative of the desire of buyers to replenish depleted stocks. The board market is quiet and little changed over last week. Tissues are reported as in a slightly healthier position, a position which will strengthen, say reports, as the Spring season advances. Some indication of price improvement has been shown in the waste paper field during the past two weeks.

Chicago Paper Association's Activities

Due to the strict terms they are held to by their sources of supply, the jobbers who hold memberships in the Chicago Paper Association passed a resolution at their February 9 meeting at the Bismarck Hotel instructing the secretary to advise all firms doing business with members that the terms would be 1 per cent ten days, thirty days net. The announcement will also include the statement that any other orders received from customers having invoices sixty days old will be filled on a C. O. D. basis only. The association is printing 1,000 of these announcements for each of the association members for their distribution to customers.

At the February 9 meeting, over which Earl Beier, president, presided, M. A. McNulty urged a better attendance at meetings, stating that the things the association was desiring to accomplish could only be carried through by strong representation from all member houses. The association also voted to have a special meeting at an early date at which a number of non-member jobbers eligible to membership would be invited to learn the purposes and advantages of the coarse paper association. All members were invited to send in a list of suggested names from which the Board of Directors are to choose those to be invited. This list will be announced at the February 23 meeting of the association.

Paperboard Association Re-Elects Officials

G. R. Browder, H. S. Adler and Grafton Whiting were re-elected to the respective positions of general manager, secretary and statistician of the Paperboard Industries Association, according to word from the association headquarters at 608 South Dearborn street, Chicago. At the time of the Association's Chicago meeting, January 20 and 21, committee chairmen and committee personnel were announced and J. H. Macleod and H. D. Schmidt appointed to serve as National Councillors to serve in connection with subjects relating to the Chamber of Commerce of the United States.

The Membership Committee, with three representatives from each group, is headed by G. R. Browder, and has nine members, including J. L. Barchard, Hummel & Downing Company; J. O. Hoerner, Iowa Fibre Box Company, Keokuk, Iowa; and E. R. Hankins, Container Corporation, Chicago, from this immediate territory. A. R. Kohl, Owens-Illinois Glass Company, Toledo, is chairman of the Sales Promotion Committee, which has W. M. Dixon, of the Container Corporation; G. G. Otto, Alton Box Board and Paper Company, Alton, Ill.; and W. H. Beckwith, Morris Paper Mills, Chicago, as representatives from this section. J. H. Macleod is chairman of the Standardization Committee, with J. J. Brossard, Container Corporation, and Irving Randall, Chicago Label and Box Company, serving from Chicago. C. W. Gaylord, Robert Gaylord, Inc., St. Louis, is chairman of the Statistical-Accounting Committee, with S. R. Van Horne, Evans Fibre Box Company, Chicago; W. I. Osborne, Jr., Cornell Wood Products Company, Chicago; A. B. Thomas, Central Fibre Products Company, Quincy; and Ray Wantz, Rockford Fibre Container Company, Rockford, serving from Chicago and Illinois. E. V. Donaldson, Robert Gair Company, is chairman of the Trade Customs and Practices Committee, with W. P. Paepcke, Container Corporation, Chicago; F. B. Ijams, Alton Box Board and Paper Company, Alton; and H. T. Cherry, Central Fibre Products Company, Chicago, representing this State.

At the request of members of the Container Group, Vice-President Madson also appointed a committee of ten members to be known as the Planning Committee of the Container Industry. James B. Fenton, Hinde & Dauch Paper Company, Buffalo, was named chairman of this important committee.

News of the Trade

Included in the 58 Chicago business concerns which have refused credit to the Chicago School Board until some bills are paid are three paper companies, Dwight Brothers Paper Company, Whitaker Paper Company, and the James White Paper Company.

Of considerable interest to the paper industry is the forthcoming Packaging, Packing and Shipping Conference, which is to be held at the Palmer House, Chicago, March 7 to 12. A survey and discussion of "The Machine Age and Its Relation to Marketing" will feature the conference. At a dinner on the evening of March 9, the Irwin D. Wolf Package Competition Award and honorary group awards will be announced and the winning package shown.

The Munising Paper Company, Munising, Michigan, has announced the appointment of Tobey Fine Papers, Inc., as stocking agents of Caslon Papers, at Springfield, Ill. The activity of the Tobey organization is supplementary to their main operation in St. Louis. Springfield distribution will be under the management of W. G. Kinkead. Complete stocks of Munising papers will be carried at Springfield for immediate delivery.

"What Were You Reading in the Eighteen Eighties?" is just one of the many features which make issue number 72 of the Westvaco Inspirations for Printers unusually interesting. Other subjects, all superbly illustrated, and all discussed in entertaining fashion are "Lanes of Communication," "Taking Money Out of Envelopes," "The Realistic Photograph," "Crying Wares in Print" and "What Makes Catalogues Sell Goods?"

For a combination of entertainment, education and quiet and unobtrusive humor the No. 9 issue of Hollingsworth & Whitney's popular Basic Fables, keeps up the reputation of the remaining eight of the series. "The Sea-Going Monkey and the Life-Saving Dolphin", the interesting story about this deceitful monkey and righteously wrathful dolphin and the straightforward copy about Basic Bond, all tie up in one of these neat little packages which are the delight of the creator and the spice of life of the paper buyer.

A new folder on Atlantic "Manifold," has been issued by the LaSalle Paper Company, Chicago distributors of the Atlantic line. The folder includes sample swatches of Manifold, White, Substance 8 and 10 and colors Canary, Pink, Green, Tuscan, Blue and Goldenrod. The paper is described as exceptionally good for multi-copy work, the bright white helping the legibility of both printing and typing and the brilliant and distinctive colors insuring quick identification of carbons and office forms.

W. B. McEachern Goes With Northwest

The addition of William B. McEachern to the Chicago District sales personnel of The Northwest Paper Company was recently announced by I. L. Gartland, general sales manager.

Mr. McEachern, formerly connected with the W. A. Johns Paper Company of Chicago and with the International Paper Company, has specialized in the sales end of the paper business and is experienced not only in fine papers but also in coarse and converting papers.

He will make his headquarters at the Chicago District offices of The Northwest Paper Company, 537 South Dearborn street and will specialize in paper sales and sales promotion.

The Northwest Paper Company with General Sales Offices at Cloquet, Minnesota, operates mills at Brainerd and Cloquet and is affiliated with the Weyerhaeuser interests. The daily capacity of the Cloquet mill is 1,000,000 pounds of paper and pulp. All paper is made from virgin pulp. The grades manufactured are English Finish, Eggshell, Super, Label, Offset, Writing, Bond, Index, Postcard, Ledger, Tub Sized Specialties, Vellum, Publication Book, Bulking Book, Drawing, Antique Envelope, White Envelope, Manila Envelope, Krakt Envelope, Nortex Envelope, Kraft Wrapping and Butchers Wrapping. Grade names such as Klo-Kay, Wilson, Northland, Arrowhead, Nortex and Japine are familiar to the trade.

Source of Supply Directory Out

Howard Publishing Company, of 1911-1913 Conway Building, Chicago, has just published the 1932 edition of the Source of Supply Directory for Fine and Wrapping Paper Merchants and Converters.

In addition to a comprehensive list of manufacturers of the various grades of paper, the directory contains a roster of paper merchants.

A section devoted to the trades customs of the different divisions of the paper industry should prove particularly useful to the trade.

The directory is published at $2.00 per copy.

Indianapolis Paper Demand Slow

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 23, 1932—No noteworthy changes have been discernible in the paper market here during the last week. Kraft prices are holding their own at the increased levels established recently. The remainder of the market is just going along. Volume of sales in all lines will show a very slight decrease from the month a year ago. Much of this is due to unseasonable weather conditions. The state has had virtually no winter weather.

Mills in Indiana have not curtailed their production any further, but there is no disposition to increase production. Stocks of raw materials at the mills are low and the same situation goes for all users of paper products. Any increase in demand is most certain to have an almost immediate effect toward stimulating the trade down the entire line. The local jobbers are working on lower inventories than they have for years and will make no change in policy until there is a definite change in business trends.

But there are many indications in Indiana at least, that impress one the bottom has been reached. During the last two or three weeks several factories have announced orders and have put men back to work. This is particularly true of the automobile industry and the accessory business. The container demand from the accessory field should show some improvement shortly.

At present most of the container field in this state is marking time until the coming of spring, when there will be an immediate increase in demand for summer specialties. And spring now is not far off. Just now most of the plants are down and such warehouse stocks as they have will have to be disposed of before they again produce much volume.

The paper stock men are in the doldrums. The mills are taking little stock and prices are very low. Local warehouse stocks are large. Some inquiry now is being received for building paper prices, though little actual buying is expected for some time.

H. E. Harmon Felicitated

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., February 23, 1932.—H. E. Harmon, prominent paper mill man and secretary of Knowlton Brothers, Inc., celebrated his 78th birthday during the past week and was the recipient of congratulations from his many friends. He was born in a neighboring village in 1854 but has resided in this city since his early boyhood. Early in life he became connected with the firm of Knowlton Brothers and won promotions quickly until he was finally made secretary. He has been identified with the company for 45 years and despite his age is still active in the performance of his duties.

For a long period he also served as general superintendent of the mills in this city. He has been prominent in civic life also and served as a water board commissioner for several years.

Kalamazoo Issues New Price Indicator

Kalamazoo Vegetable Parchment Company, of Parchment, Michigan, has just issued its 1932 Ruled Paper Division price list. The price list is made up of buff sheets and green sheets and also contains a rapid price indicator for standardized quality school papers, and for note book fillers and ruled pads. This unique indicator is a new idea in a price list.

All-Water Route Planned for Paper Cargoes

Negotiations Under Way Between Canadian News Print Manufacturers and Buffalo Steamship Operators—Under Proposed Scheme News Print Paper Thus Shipped Would Be Transported Via Great Lakes Ports at Considerable Saving

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 22, 1932—Canadian news print may be shipped by a new all-water route in the early Spring, if present negotiations under way between Dominion manufacturers and Buffalo steamship operators mature. Under the proposed scheme, news print thus shipped would travel via Great Lakes ports at a very material saving over the rail haul cost at present involved, vessel owners claim. While Three Rivers, Que., is named as the originating point of the proposed traffic, it is expected that other St. Lawrence Valley mills will participate in the shipping scheme. The plan for shipping news print is to have the steamers which carry grain or other freight to Montreal proceed an additional hundred miles to Three Rivers and load the paper at the mill wharves along the St. Lawrence. The return will be made through the locks around the St. Lawrence Rapids, across Lake Ontario, through the new Welland Canal and into the Great Lakes. With the new canal completed practically every steamship hitherto operating between Buffalo and points westward will be able to enter Lake Ontario. The largest of these steamers will not be able to reach Montreal, however, until the locks of the Upper St. Lawrence are enlarged as part of the proposed seaway, now the subject of negotiations between Canada and the United States as a combined power and navigation project. Large scale movement of news print was carried on during the 1931 navigation from the paper mill at Tonawanda, a Buffalo suburb, to Chicago. If present plans are carried forward it is estimated that the 1932 movement of paper on the Great Lakes will be well in excess of 500,000 tons.

Light Pulpwood Operations

The pulpwood operations being carried on in Northern Ontario are about 80 per cent less than in normal years. Fortunately for those who have depended upon wood cutting for their winter's livelihood, the extensive highway operations which the Ontario Government has inaugurated, through its Northern Development Department, has absorbed most of these. In the Thunder Bay district, the Pigeon Timber Company are operating seven camps on their Onion Lake limits and two camps on their Nipigon Straits limits, employing 400 men. The company has the contract for the taking out of 60,000 cords of pulpwood for the Great Lakes Power and Paper Company; Donald Clarke, of Port Arthur, has five camps, employing two hundred men on the Magnet Point limits. He also has three camps, employing about 150 men, on his Nipigon pulpwood limits. Oscar Styffe, Ltd., is also operating several pulpwood camps on limits adjoining those of Donald Clarke, employing 170 men. In the Sault Ste. Marie district only small operations are taking place this winter, the Abitibi Power and Paper Company mill at Ste. Marie operating with the stock of pulpwood cut during the past two winters. They will not be operating any camps of their own this winter. Four pulpwood camps are being operated by the Newago Timber Company on the Alboma Central Railway between Sault Ste Marie and Hearst. Fifty men are employed at the Northern Paper Mills camp and five camps are being operated by T. Kelly, of Espanola, on the Mississaugua Reserve, employing two hundred men, while Keenan Brothers, of Owen Sound, are also running three camps, employing about 120 men. The Carpenter-Hixon Company, of Blind River, who usually operate about 20 camps, employing over 2,000 men, have no woods activities this winter. The biggest woods operations of the season are taking place on the limits of the Spruce Falls Pulp and Paper Company, near Kapuskasing, where nine hundred men are employed taking out pulpwood.

Paper Situation Discussed

Declaring that the paper situation is one of the weak spots in its relation to the printing industry, Field Secretary T. G. McGrew, of the U. T. A., in an address before a general meeting of the Toronto Typothetae, following a luncheon at the Royal York Hotel on February 9, made a strong plea for closer co-operation between the two industries, stating that reduction in the cost of printing started out on the cost of paper. Mr. McGrew quoted the case of a paper house which had delivered paper to a printing establishment no less than three times a day, on order from the printing house, all of which helped keep up the cost of paper. He declared that Toronto, through its geographical situation and through the excellent services being rendered by the Toronto Typothetae, should be quick to restore business to normal, and he saw great prosperity ahead for both the printing and the paper industry. Both, he declared, were on the threshold of expansion following an early expected ending of the present temporary depression.

Gt. Lakes Paper Affairs

A petition for a receiving order against the Great Lakes Paper Company, Ltd., was made before Justice Sedgwick at Osgoode Hall, Toronto, by the Inland Coal and Dock Company, who claim they are unsecured creditors for $253,000 for coal supplied. F. R. McKelcan, K. C., for the corporate trusts department of the National Trusts Company, said his firm issued $1,000,000 of bonds on a first mortgage on the Great Lakes Company property. The company defaulted in interest payments and the trust company, as trustees for the bondholders, were appointed receivers and managers. He advocated that the application should be made under the Winding-Up Act rather than the Bankruptcy Act. Judgment was reserved by the court. An important witness will be E. W. Backus, of the Minnesota and Ontario Paper Company, which Mr. McKelcan said had an agreement with the Great Lakes Company over tonnage contracts. If the Minnesota company refused to carry it out, the trustees would apply for an injunction either in Ontario or Minnesota. He feared that if the Great Lakes company were put into liquidation the receiver of the Minnesota company would contend they were not obliged to carry out the contract.

Provincial's Satisfactory Profits

The annual report of Provincial Paper, Ltd., for the year ended December 31, 1931, was issued from the company's head office in Toronto this week. It showed in-

(Continued on page 22)

Boston Paper Market Is Moderately Active

Fairly Substantial Volume of Orders Received by Some Paper Merchants—Slight Improvement Noticed in Demand for Various Grades of Fine Paper—Wrapping Paper Request Persistent—Box Board Position Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 22, 1932—A moderate amount of business has been transacted in the wholesale paper market during the week and the general tone is favorable. Some dealers have received a fairly substantial volume of orders and others in smaller amounts. The Boston merchants who attended the convention in New York returned in an optimistic frame of mind, encouraged by words both publicly and privately spoken.

There has been a slight improvement in the demand for fine papers. Business secured by one large house so far this month has been more than that for February, 1931. The call for wrapping paper has averaged fair. In the box board market, there has not been much change. Material for shoe cartons, due to the country-wide activity of the shoe factories, continues in lively demand.

The paper stock market has been a shade better, although the demand is still generally quiet. In a few grades there has been enough call to advance values. Foreign manila rope is now quotable at 1.65 flat, with an upward tendency, compared with a range of 1.50 to 1.65, previously named.

H. C. Ham Discusses Romance of Paper

Herbert C. Ham, of Arthur E. Ham & Sons, gave an address at the regular meeting of the Providence Club of Printing House Craftsmen at the Providence Plantations Club, Providence, R. I., Wednesday evening. Mr. Ham's talk covered the romance of paper. He brought out the fact that regardless of all means of communication, including radio, it is necesary to use paper both at the starting point and the receiving end. He elaborated considerably on the technicalities of paper, the effect of changes in humidity, and the fact that the new small-size presses enabled the printer to turn out a much better job, due to the fact that any total change in the paper would be much less in a smaller sheet. He brought out the point that for many purposes a starch-coated sheet was by no means so desirable as a casein sheet. A very interesting period followed, in which a number of unusual questions were asked. President Stanley Parker presided at the meeting, at which there was a good attendance.

Allied Paper Mills Appoints Agent

John A. Andrew has been appointed exclusive New England agent of the Allied Paper Mills, Kalamazoo, Mich., taking effect March 1. Mr. Andrew has developed a club car service in the New England points for the benefit of the jobber and converter. Many of the club cars go to Boston, Providence, Springfield, and New Haven. Mr. Andrew has discontinued his former connection with the mill sales department of Whitney-Anderson Paper Company.

News of the Trade

The Arnold-Roberts Company is sending out announcements of three papers made by the West Virginia Pulp and Paper Company—New Velvo-Enamel, New Sterling Enamel and New Marquette Enamel, described as new in color, folding, surface, strength and value. On the samples there are printed several cuts, which include halftones line cuts, and combination line and half-tones.

Storrs & Bement Company are mailing to the trade samples of six new papers made by the S. D. Warren Company—Library Text (fine English finish), Library Super Plate, Cumberland English Finish, Cumberland Super Plate, New England English Finish, and New England Super. Half-tone cuts are shown on each sample. All the samples demonstrate several improvements. Among improvements mentioned are brighter color, finer formation, better printing quality, opacity. The new ivory shade of the Library text, made also in white, has an improved printing surface.

A meeting of the junior salesmen of the Storrs & Bement Company was held recently at which J. H. Brewer, general manager, presided. Mr. Brewer showed two moving pictures—the manufacture of book papers and the manufacture of news print.

Walter G. Morey, of the Morey Paper Mill Supply Company, this city, was recently elected president of the Fitchburg Screen Plate Company, Inc., at the annual meeting of that company in Leominster, Mass. Mr. Morey succeeds Bartow Crocker, who resigned because of the press of other business.

Recent callers at the home of Max Frank, 25 Gibbs street, Brookline, see that Mr. Frank is steadily improving since the amputation of his leg. Two years ago it was necessary to amputate one of his legs and recently the other one. Mr. Frank is associated with John Carter & Co., Inc.

G. C. Eastman, of the S. A. Eastman Company, box manufacturers, Milford, Mass., and Mrs. Eastman, accompanied by J. O. Noble, New England manager of Hinde & Dauche Paper Company, Thompson & Norris Division, passed the holiday week-end at the Valley Hotel, Hillsboro, N. H.

R. D. W. Ewing, vice president and general manager of the American Writing Paper Company, visited the Boston trade recently.

Ernest C. Calkin is to stock in the Sealright Warehouse, Cambridge, Mass., the line of butcher paper made by the Oswego Falls Corporation, Fulton, N. Y. The Boston address continues the same, as for the last twenty years.

The Huntington Paper Company, Huntington, Mass., has been incorporated. There are 1,500 common shares of no par value. The incorporators are Helen M. Freeman, president and treasurer, 156 Oak street, Holyoke, Mass., Frank E. Button and John P. Brassil.

Nathan A. Margolis and Albert Gould, as Supreme Paper Company, 28 Commercial street, have made an assignment Benj. F. Pollack is assignee.

Finnish Paper Exports for 1931

A report from Commercial Attache Sommer at Helsingfors states that Finnish papers exports last year totaled 274,168 metric tons as against 257,862 tons in the preceding year. Ground wood exports during the same period declined from 101,507 tons to 97,778 tons, while wood pulp boards amounting in 1930 to 41,999 tons remained at about the same level.

British Tariff and Canada's Pulp and Paper

While New Duties Adopted by British Parliament Do Not Mention Pulp and Paper, Dominion's Claims Are Being Pressed by G. Howard Ferguson, Canadian High Commissioner In London—Protests Against Any Tariff Made on Floor of House

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 22, 1932.—Cable despatches from London published in the papers here have laid considerable emphasis on the news that Canada's claims regarding news print and pulp are being pressed before the British Government by the Canadian High Commissioner in London, the Hon. G. Howard Ferguson. The new tariffs adopted by the British Parliament make no mention of pulp and paper, and Mr. Ferguson is reported to have represented that if the British Government would impose the 10 per cent tariff on news print, wood pulp and paper, on the same plan as the 10 per cent duty is imposed on other foreign products, the chances of the Canadian trade would be much improved.

From Newfoundland it is announced that the Governments of Canada and Newfoundland are working hand in hand to secure preference for Empire news print in the British market, according to a statement given to newspaper correspondents by Prime Minister Sir Richard Squires.

He said he had instructed the Hon. D. James Davies, C.B.E., Trade Commissioner for Newfoundland in London, to co-operate in closest harmony with the Canadian Trade Commission in making representations to the British authorities.

The news print mills of Newfoundland have been running at capacity for some time and the 1931 output was far above that of 1930. Preference in the British market would assure the industry of continuous operation.

Later cables from London announce that protests against any tariff on news print, wood pulp or paper have been made on the floor of the House of Commons. Those who made the protests included the Rt. Hon. George Lonsbury, leader of the Labor Opposition, and the Rt. Hon. G. C. Tryon, Conservative Minister of Pensions. The last-named said the question of news print affected between 6,000 and 7,000 newspapers and periodicals in Great Britain. Two-thirds of the country's importations of news print came from Canada and Newfoundland, he said, while the rest came from foreign sources, chiefly from Finland, Norway and Sweden.

The problem, he declared, was not as simple as it appeared. Three large groups of British newspapers owned three-quarters of the news print of the country, with sources available to them in Canada and Newfoundland.

While certain newspapers advocated a duty on news print, he said, urgent representations had been made to the Board of Trade to have this product placed on the free list of the trade bill.

Comment in Canadian newspapers is largely non-committal on the subject, though there are those who point out that a tariff might be prejudicial rather than otherwise to the Canadian news print and wood pulp industry, as if Scandinavian producers lost the British market to Canadian producers they would almost inevitably turn to the United States market and greatly embarrass Canadian exporters in that direction.

Canadian Book Mills Feel the Pinch

The last two years have witnessed a considerable decline in the Canadian production and consumption of book papers, printing papers, coated paper, writings and fine paper generally.

The fine paper mills of Canada manufacture a great variety of papers, in fact they are equipped to produce practically every grade of paper that is needed or called for, the only exceptions being in the case of some specialties for which the demand is not large enough to warrant domestic production. It must be always borne in mind, however, that Canadian manufacturers of fine papers have a very restricted market, their sales being confined almost entirely to Canada since high tariff walls effectively prevent them from competing in foreign markets.

For fine papers there was a large decline in output in 1931 as compared with 1930. The production of book paper dropped 13 per cent from the previous year, coated paper declined 18 per cent, and writing papers were lower by 4 per cent. It is notable that while the output of writing paper declined by only 4 per cent in 1931, the decline in 1930 as compared with 1929, the peak year, was 13 per cent. On the other hand the output of book paper in 1931 dropped 13 per cent as compared with 1930 while in 1930 it dropped only 4 per cent as compared with 1929. Coated paper suffered even worse than the other grades, there having been a drop of 11 per cent in 1930 as compared with 1929 and a still further drop in 1931 of 18 per cent as compared with 1930.

As compared with 1929 the production of book paper in 1931 showed a decline of 17 per cent, of writing paper 17 per cent and of coated paper 27 per cent. Even in 1929, which was the peak year of production, the fine paper mills were by no means operating at full capacity and were obliged to run part of the time on cheaper grades in order to obtain satisfactory production schedules. It is evident therefore that with the decline in demand and the correspondingly reduced output the year 1931 was one of great difficulties for the fine paper mills.

Nor has the lack of production by the domestic mills been made up by importations of paper from other countries. Imports of book and printing paper in 1930 amounted to 13,622,179 pounds, while in 1931 these imports fell to 6,504,312 pounds, a decline of over 50 per cent. Imports of bond and ledger papers which in 1930 amounted to 1,109,802 pounds, dropped to 688,980 pounds in 1931. The imports of envelopes declined from 69,663,000 in 1930 to 58,697,000 in 1931. This heavy decline in importations, which come principally from the United States, has taken place in spite of very low prices at which paper has been offered, in many cases at prices below the cost of manufacture in this country. Had these imports in 1931 been on the same scale as they were in 1930 and 1929, the fine paper mills in Canada would have been in a parlous condition. Even as it was the domestic mills were not able to operate on satisfactory schedules and in several cases the mills made sacrifices in order to assist the unemployment situation. Since the beginning of the current year there has been a further decline in demand due to the uncertain tone in general business.

Whether this will continue is of course impossible to forecast, but it is hoped that the tide will soon turn and the demand for fine papers begin to show improvement.

Pennsylvania Paper Mills Broaden Production

Manufacturers In Vicinity of Philadelphia More Active, With Several Plants Returned to Full Time Schedule—Fine Paper Market Shows Some Improvement—Book Papers More Buoyant and Bonds and Writings Generally Steadier

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 22, 1932.—There was a decidedly better outlook in the Philadelphia paper industry throughout the week as the improved market brought dealers and manufacturers to the conclusion that a turn for betterment had come. Throughout the list the small lot demand broadened and prices were steadier. Wholesalers of paper, and mill agents, on the other hand, were more inclined to make values attractive in order to secure contracts for volume shipments.

Paper mills in the immediate vicinity of Philadelphia were placed on broader production, a few having returned to full time schedule. Fine papers were chiefly active, the better grades of bonds, writings and announcement stocks holding well to the steadier prices, while book papers were leaders in the growing wholesale list of papers. The kraft situation is decidedly better and is a factor for encouragement to the wrapping paper division. Bags and other converted products, too, are steadier.

Though the mill and distributive trades have been more active, the revived interest has not yet been reflected in the paper stock market where conditions still are sluggish.

Paper Mill Superintendents to Convene

Members of the Pennsylvania-New Jersey Division of the American Pulp and Paper Mill Superintendents' Association met at Exton Lodge, near Downingtown, Pa., last week, and arranged for the coming Spring Convention of the local organization. There were nineteen mills represented at the gathering, with J. Linville Mullin, of the Jessup & Moore Company, presiding. Following the routine business session plans for the coming Spring Convention were discussed and the following Committee on Arrangements appointed: Charles Ellis, Downingtown Manufacturing Company, chairman; S. C. Wentz, P. H. Glatfelter Paper Company, and Frank Winslow, General Electric Company. The Spring meeting will be held in Reading, Pa., the hotel in which the convention is to be held to be selected later, and the program confined to June 16. Cecil Lynch, of the Dill and Collins Company, represented the Philadelphia mill industry at the Downingtown meeting.

Association Plans Stabilization

When the Fine Paper Division of the Philadelphia Paper Trade Association met at the DuFour Restaurant in Fourth street last Wednesday, there was a well rounded attendance of trade associates who planned for the stabilization of the local paper market in the coming months. The newly elected president, William A. Hentz, of the D. L. Ward Company, discussed with the fine paper merchants the need for closer and united efforts towards stabilization of the paper industry in the coming business revival and the building of the trade on firmer foundation for the upward swing believed to be at hand.

Penn Card & Paper Opens Washington Branch

Announcement by Myer Magil, head of the Penn Card and Paper Company, 410 Race street, last week, of the opening of a branch paper distribution house in Washington, D. C., develops further expansion plans, which were inaugurated with the acquisition of the new paper headquarters purchased by that concern last year, providing the firm with a modern and large warehouse and sales rooms for its fine paper business. The branch in Washington was opened a few days ago and is under management of L. W. Sorrell, who has been associated with several Washington paper houses and was a former manager of the Virginia Paper Company. The new branch is located at 808 H street, N. W.

Enterprise Paper Co. Inaugurates New Department

An entirely new department and the only one of its kind in the Quaker City trade has been inaugurated by the Enterprise Paper Company, Third street and Callowhill. It is a department devoted to the converting of transparent cellulose products, such as shredding and dyeing and the manufacture of transparent cellulose hand rolls of various sizes adapted for packing purpose, including twine wraps for merchandise and bulky products like tires, etc. Among the converted products are tubes of finely shredded transparent cellulose for weaving purposes, such as the manufacture of textile cloths for women's hats of latest vogue. David Back, of the Enterprise Paper Company, is in active charge of the new department.

Paramount Paper Products to Expand

Owing to the increased demand for glassine and cellophane bags recently developed on broader scale by the Paramount Paper Products, Inc., Third and Callowhill streets, it is the purpose of the officials of that concern to remove shortly to larger quarters. Announcement of the change in quarters will be made as soon as negotiations now under way are completed.

New Papers in Local Market

The newest lines to be added to the local paper market are the book and cover grades of the District of Columbia Paper Company, stocked only by the Whiting Patterson Company, and known as the Congress book and cover. They are light and heavy weight covers and book papers, the cover made to harmonize in colors with the book paper, but of slightly darker shade.

Raymond & McNutt Stocks New Strathmore Lines

Another late arrival in the Philadelphia trade is the Strathmore Paper Company's medium priced announcements, the Broadcaster Text, with paper and card boards to match, stocked by Raymond & McNutt. These papers are unusual and have a novel finish and come in modish colors, making an attractive announcement or advertising product.

W. C. Hamilton & Sons on Full Time

The operating schedule of the fine paper mills of W. C. Hamilton & Sons, at Miquon, have been placed on full time following a long period of part time production. The schedule was increased last week, and the mills have sufficient advance orders for all lines of fine papers to keep this speed of production for the remainder of the month.

Dill & Collins Broaden Production

Operations at the Dill & Collins Company mills, at Richmond and Tioga streets, have been placed on broader schedule, as the manufacturers of fine papers find business improving. While the full week has not yet been adopted there has been an increase in the working days over those maintained since the first of the year and late 1931.

New Development In Ground Wood Production

By C. D. DeMers, Taylor Instrument Companies

There may be some question as to the identity of the inventor of the ground wood process, ie., whether it was Fenerty in 1838 or Keller in 1844, but there certainly can be no questioning the fact that the development of this process along modern lines of maximum efficiency and production has not kept pace with the development of both equipment and technique followed and used in many of our leading industries.

The principle of the wood pulp grinder has not changed during the 90 years that have passed since the first unit was developed. The design of the grinder, methods of driving the grinder, stones, controlling the pressure applied to the pressure cylinders, operating the burring or jigging lathe, and other mechanical details such as measuring the amount of wood passing through the magazine of a magazine type grinder, has been greatly improved during the past 25 years.

Methods Used 25 or 30 Years Ago

These improvements while tending to increase the productive capacity of the grinding units very materially, and the efficiency as measured in terms of a more uniform stock, to a limited extent, have done very little to improve the control of these units to a point where stock of uniform quality for a definite product can be produced. Consequently, today we find the same methods of stock control used that were being used 25 or 30 years ago.

This method of control, dependent almost entirely on the skill of the men in charge of the grinders, has developed a craftsmanship enabling them to produce a fine grade of stock with a fair degree of uniformity, but like all operations dependent on the human element is subject to the difference in the degree of skill attained by different men, and the many personal opinions as to what constitutes good ground wood stock.

As an aid to the operators and a record of unit operation for the superintendents, a few mills have installed recording thermometers. These instruments, with bulbs installed at various points in the stone pit, have furnished chart records of the stock temperature in the pit, which enabled the operator by manipulating a hand valve on the shower supply line, to maintain the grinding temperature closer to the desired point than was possible without this record.

Important Problem Brought Up

The use of recording thermometers brought up the problem as to the proper location of the recorder bulb as well as the most suitable type of bulb and instrument to use. A check of the efficiency of this application developed the fact that the location of the bulb greatly affected the value of the chart record produced. Some installations were made with the bulb located in the shower end of the stone pit; this meant that the bulb affected by the cold shower water was not an accurate record of the average stock temperature in the pit, but only of that portion of it affected by the discharge from the shower pipe.

Other installations were made with the bulb located on the bottom of the pit directly beneath the grinder stone. Bulbs located at this point were often covered with slabs and stock that accumulated on the bottom of the pit, and, being in a comparatively dead spot, did not react to changes in the temperature of the stock flowing from the stone pit to the screens. Various types and lengths of bulbs were used; many of them located in the bottom of the stone pit were broken and torn away from the connecting tubing by the rakes and bars used in cleaning the slivers and slabs from the pit. Records made with instruments equipped with a short bulb usually about 6 inches long, installed in a stone pit from 30 to 60 inches wide did not represent the true average temperature of the stock, as many times the flow of stock, due to piling up of slivers and slabs, was diverted from the point of bulb location to other points of the overflow weir. This meant a fairly uniform temperature line, due not to the efficiency of the control methods, but to the fact that the bulb was

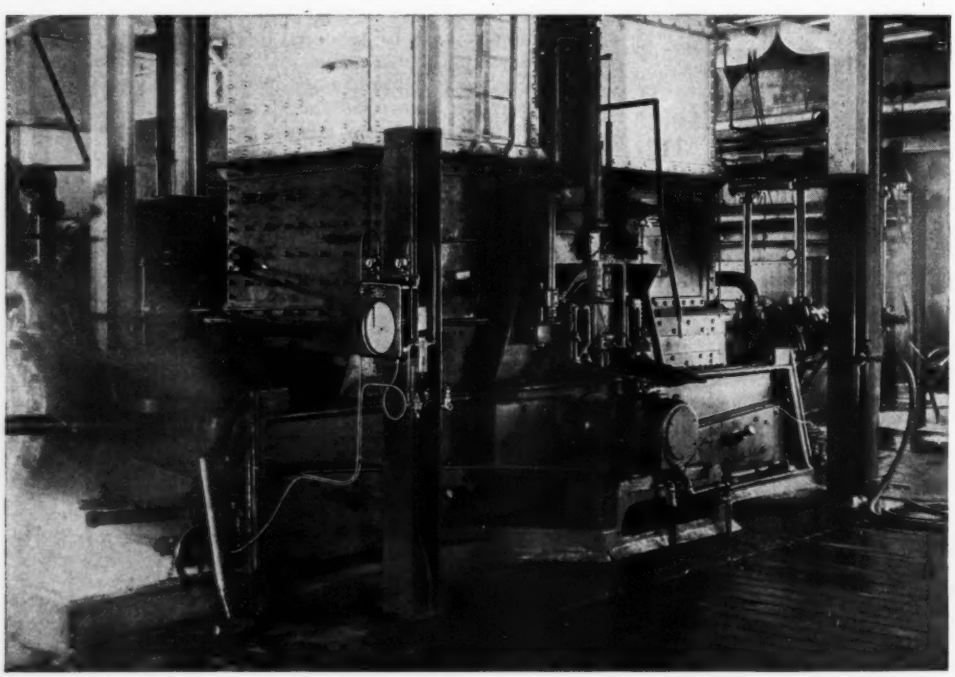
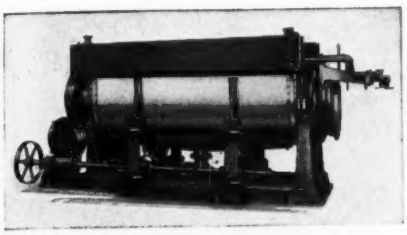


FIG. A.
Represents a typical installation on a magazine grinder.

simple change cuts dirt count

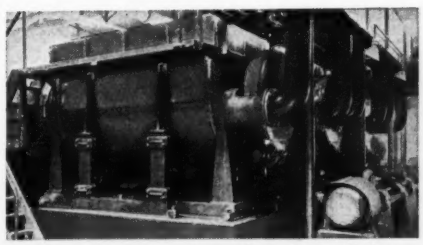


If you are looking for a way to improve quality, at trifling expense—look to your screens.

A moderate increase in Bird Screen capacity, with a corresponding reduction in screen plate slot size, *has cut dirt counts in half* for a number of mills.

The change is quick. The extra cost per pound of the better paper is microscopic. At no other point in the mill can you get a greater bargain in quality.

May we go over your screens with you, to see how this plan would work in your mill?



Ample capacity raises cleaning efficiency

BIRD MACHINE COMPANY
SOUTH WALPOLE ◆ MASSACHUSETTS

BIRD SCREENS

5313

not reacting to actual changes in temperature of stock.

Uniform Temperature

The action of the pulp mill operators in endeavoring to control the temperature of the stock; first by intermittent readings with an indicating thermometer, and later with continuous records from a recording thermometer, was an indication that the value of uniform temperature in the grinding process was realized and considered an important phase of efficient grinder operation. This led to the development, by Taylor Instrument Companies' engineers, of the first successful application of automatic grinder temperature control.

The importance of uniformity in grinding temperature has been the subject of various articles in technical and trade magazines published during the past few years. One statement made during 1928 by the chairman of a committee appointed by a technical association to report on the subject of Variables in Ground Wood Manufacture, that —"Information of great value would be developed by a study of temperatures during the grinding process if some method of measuring the grinding temperature could be found"—encouraged engineers of the Taylor Instrument Companies to work on the development of such an instrument. After considerable research work covering primarily the proper bulb design and bulb location suitable to various type grinders, and some changes in a standard Tycos Temperature Recording Regulator, a successful application was made several years ago on a Waterous Hydraulic Type Grinder.

This original instrument installed on three different grinders in the same plant to check its efficiency on different grinders, has been in successful operation ever since the day it was originally installed.

Freshness, Color and Tensile Strength

Further studies of grinding temperature control have developed the fact that variations in grinding temperature materially affect the freeness, color, and tensile strength of ground wood fiber; further that changes in freeness of the stock due to variations in grinding temperature affect the results obtained in processing the stock in the jordans, beaters and screens; affect the character of its flow under the slice and the action of the suction boxes, suction rolls and presses in their contact with the sheet.

Stock produced on grinders controlled with the Tycos Pulp Grinder Temperature Regulator is noticeably free of coarse or bundled fibers caused by grinding at low temperatures, and objectionable flour or fine pulp produced when grinding at extremely high temperatures. Stock produced at one plant and used for molding in various pulp products, has been found to dry more uniformly to a desired shape after the grinders had been equipped with the Tycos System of Control. The mill superintendent at this plant also noticed a material increase in the production of the grinders; this undoubtedly due to the fact that by controlling the grinding temperature at a definite point, the amount of water used is fairly constant and the grinding stone is operating under conditions that are very uniform.

An important item in connection with temperature control in producing ground wood pulp is that uniform temperature eliminates, to a great extent, the normal damage to stones caused by rapid expansion and contraction, as the temperature varies from one extreme to the other when hand control is used. Close control of grinding temperature also materially lengthens the normal life of a natural stone by reducing the number of burring operations. One mill operator has been able to operate a natural stone for 26 hours without reburring it, as compared with 11 hours before the Tycos Control was installed.

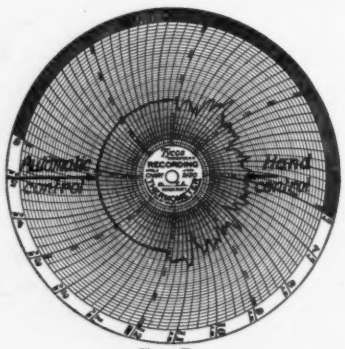


FIG. B.
Magazine Type

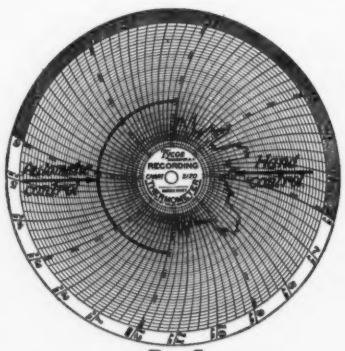


FIG. C.
Pocket Type

WOOD PULP GRINDER CONTROL CHARTS

Importance of Control

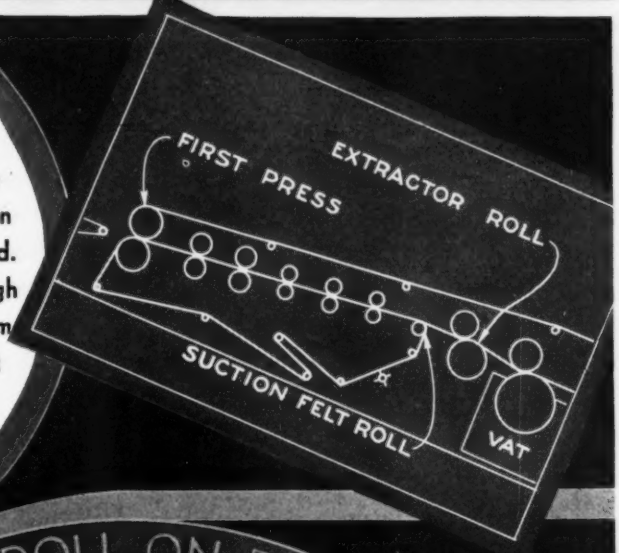
Control which has been called the most important requisite of a properly coordinated organization is nowhere of greater importance than in a pulp mill, as the quality of paper made from the pulp produced in the pulp mill is dependent almost entirely on the quality of the pulp. Poor workmanship can produce poor paper even when using the very highest quality pulp, but the very best workmanship cannot produce good paper if the pulp used is not of good quality.

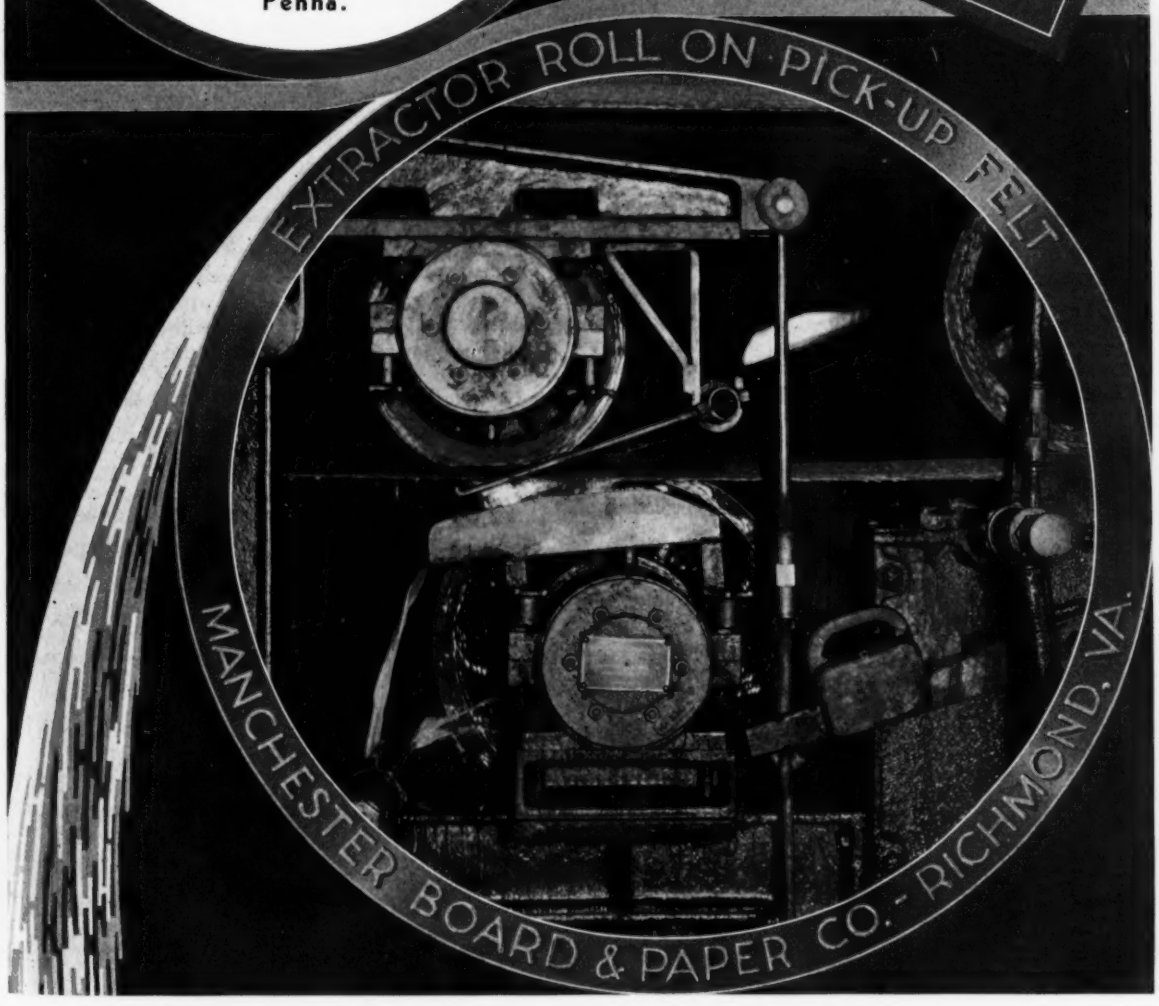
The instruments and application method developed by the Taylor Instrument Companies for controlling wood pulp grinding temperature, embody an instrument of great sensitivity and a regulator bulb location that hampers in no way the usual operating activities of the worker. The nature of the control is constant and within the limits of ± 1° F. variation of any predetermined temperature. The control point can be changed at will by the operator and in starting up after a shut down the temperature can be brought up gradually to the operating point. This eliminates the damage due to a rapid increase of stone temperature. The entire system is simple, practical and reliable and is of too great importance to escape the attention of any mill operator who realizes the value of temperature control in this most important process.

It enables the operator to grind the stock at a temperature best suited for a particular purpose, whether for

DOWNINGTOWN

An unusual arrangement of felts is shown on this machine with the installation of one Downingtown Extractor Roll on the pick-up felt. The felt runs towards the presses instead of in the usual direction. No long top felt is used. The pick-up felt serves as a top felt through the presses with a short first press bottom felt joining the pick-up felt after it passes through the Extractor Roll. The Downingtown Mfg. Co., Downingtown, Penna.





strength or finish, protects the character of the stock, insures its quality and gives uniformity that is conducive to greater safety in machine operation, at the same time relieving the grinder operator from the difficult task of controlling the grinding temperature of several shower lines thus giving him more time for checking the operation of the pumps, governors, filling of the larger type grinders, dressing the stones and the many other duties connected with the successful operation of a ground wood pulp mill.

The Illustrations

Illustration A represent a typical installation on a magazine grinder; illustration B, a comparison between hand and automatic control on a magazine type grinder and C a chart showing hand and automatic control on a pocket type grinder.

We feel that these records of actual operations present an accurate picture of the efficiency of the Tycos Control System, the benefits due to this control in the manufacture of a high quality ground wood pulp and the possibilities of a successful application on both magazine and pocket type grinders.

The Tycos System of Automatic Temperature Control for Wood Pulp Grinders places the regulator bulb or thermal sensitive element where it belongs, where it is adjusted as the stone wears smaller in diameter, where it records and controls accurately and continuously yet is protected from damage, without interfering in any way with the operation of the grinder. The installation is fully covered by U. S. Patent No. 1806238 and Canadian Patents Nos. 254887 and 331574.

A Worth While Contribution

The Taylor Instrument Companies feel that the development of this application is a worth while contribution to the art of paper making. Installations are now being made on grinders of various sizes and types.

Michigan Paper Co. Makes Improvements

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, February 8, 1932—During the past year the Michigan Paper Company has made many improvements to its Plainwell unit. These include the completion of a new power plant and the addition of equipment to the mill. These points were brought out at the annual stockholders meeting, held Thursday afternoon.

All directors were re-elected as follows: L. H. Kirby, H. C. Jackson, W. J. Lawrence, Guy B. Woodruff, Kalamazoo; Henry Pelgrim, A. C. Keppel. Holland; E. W. Stone, Allegan; H. J. Mesick, C. C. Wagner, O. O. Stone and G. W. Gilkey, Plainwell.

The officers are: G. W. Gilkey, president, general manager and treasurer; C. C. Wagner, vice president; H. C. Jackson, secretary; F. L. Brown, assistant secretary; P. C. Servass, sales manager.

Boonville Paper Box Co. Formed

BOONVILLE, N. Y., February 23, 1932.—The Toombs Manufacturing Company has been reorganized under the name of the Boonville Paper Box Company and operations have been resumed in a leased establishment here. The plant suspended operations about a year ago and most of its employees have taken positions in other sections. With the resumption of operations this week it was announced that the concern has a large number of orders to be filled. The plant is not running at full capacity as yet but nevertheless a large number of persons are being steadily employed. More employees are to be added in the near future.

ALL-WATER ROUTE PLANNED

(Continued from page 14)

terest charges earned more than two and one half times after charging depreciation. After interest charges and a liberal write-off for depreciation there remained a net profit available for dividends of $325,139. The usual preferred dividends were paid during the year, amounting to $245,000. The balance remaining, together with the credit in surplus account, as of December 31, 1930, amounted to $752,570, and was carried forward to 1932. The balance sheet indicates a strong financial position. Current assets at $2,432,115 were over seven times current liabilities of $348,695, with net working capital of $2,083,420. The company redeemed $100,000 of its first mortgage bonds, and expended on additions to property and plant $125,995 during the year. Property and plant account now stands at $9,066,260 and this figure contains only a nominal amount for the company's wood areas, which are conservatively estimated to be sufficient to supply all the company's wood requirements, at the present rate of consumption, for more than forty years. Reserve for depreciation now stands at $1,500,000, and in addition there is a general reserve of $1,484,286. The management has made liberal provision for depreciation, and in addition to this has absorbed in operation all necessary charges for repairs and renewals.

In combined output Provincial Paper is the largest manufacturer and distributor in Canada of high-grade coated and book papers, its four plants, all in Ontario, operating eight paper machines, six paper-coating machines, and sulphite and ground wood mills, having a daily capacity of paper production of more than 190 tons. Its timber limits are advantageously located near the company's pulp and paper mill at Port Arthur. It will be recalled that early in 1930 all of the common stock of the company was acquired by the Abitibi Power and Paper Company.

E. A. Skidmore Goes With Paper Service

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 23, 1932—E. A. Skidmore, formerly identified with the gummed paper business in Troy, has accepted a position with the Paper Service Company at Lockland, in the southern part of the Miami Valley and which manufactures barrel liners, bags and gummed tape. Mr. Skidmore will have charge of the gummed tape department and will assist in other lines.

The company, a comparatively young one, is said to be well-financed, and has connected with it some of the outstanding younger business men of the Cincinnati district. The firm is reported to have been successful in spite of prevailing conditions.

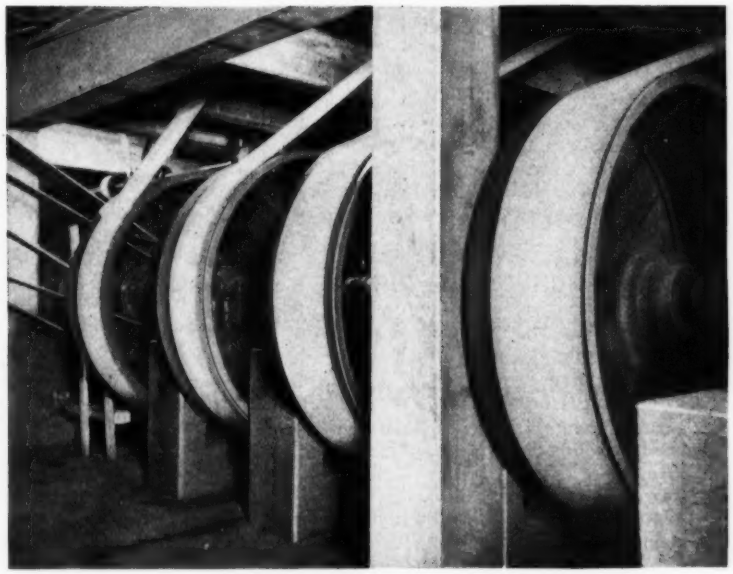
Mr. Skidmore who served in an important capacity with the gummed paper trade in the northern part of the valley for a number of years, having relinquished a post with the city educational system to enter the business, will leave Troy February 29 to assume his new duties.

Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 24, 1932.—Mills of the Japanese Paper Manufacturers Association report an output of 56,060 short tons of paper during the month of November as compared with 57,750 tons during the corresponding month of 1930. Consumption of paper base stocks during November, 1931, comprised 26,343 tons of chemical pulp, 17,894 tons of mechanical pulp, 716 tons of rags, 1,146 tons of straw and 2,448 tons of waste paper.

Just try a new Goodyear THOR Belt on one of your beater drives



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Specified by the G. T. M. —the Goodyear Technical Man who knows paper mill requirements practically as he knows rubber expertly —Goodyear THOR Belting, seamless* — Goodyear Soft-Nozzle Sanitary Hose for wash-up purposes—and other Goodyear Mechanical Rubber Goods will serve you better, longer, more economically. Just write Goodyear, Akron, Ohio, or Los Angeles, California, to send you the G.T.M.

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Obituary

William H. Tay

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 22, 1932—William H. Tay, assistant treasurer of Stimpson & Co., associated with that firm over thirty years, and widely and favorably known in the paper trade, died at his residence, Wakefield, Mass., last Tuesday. Mr. Tay had been suffering from a cold and while at his office Monday, his condition became alarming, so that he was taken home. Mr. Tay was born in Salem, Mass., August 29, 1856, the son of Henry and Hannah (Jelly) Tay. More than fifty years ago he conducted a furniture store in Wakefield. In 1884 he sold the business to become associated in business with his father in Buenos Aires, Argentine. He remained in South America until 1895.

He first became bookkeeper for Stimpson & Co., and later assistant treasurer, being elected to the latter position in 1928 on the incorporation of the firm. Mr. Tay was a director of the Wakefield Savings Bank for many years, but resigned a few years ago. He was a member of the board of directors of the Wakefield Cooperative Bank. For many years he served as a director of the Wakefield Y. M. C. A. He was clerk of the Baptist Church in Wakefield, treasurer of trustees of the church and had served as superintendent of the Sunday School and Deacon. For many years he was devoted to Masonry, had held office in Golden Rule Lodge ever since he became a member, and at the time of his death was serving his 25th year as chaplain. He was also serving his 29th year in office and was master of the lodge in 1914-15. He was chaplain of the 35th Masonic Lodge of Instruction. He was an honorary member of King Cyrus Lodge of Stoneham and the Good Samaritan of Reading. He was a member of Harmony Chapter No. 60 O. E. S. and worthy patron in 1914. Mr. Tay's wife died October 21, 1926. Two daughters, Mrs. Marion Evans, of Wakefield, Mass., and Mrs. Emilita Lawrence, of Providence, R. I., and seven grandchildren, are living. Several members of the paper trade attended the funeral held Thursday in the Baptist Church at Wakefield, with Masonic rites. Out of respect to the memory of Mr. Tay the office of Stimpson & Co. was closed the day of the funeral.

Arthur J. Straw

MANCHESTER, Conn., February 23, 1932.—Arthur Joseph Straw died February 12 after a brief illness of pneumonia. He was born in Scitico, near Hazardville, 77 years ago, and when a child moved with his family to Manchester Green, where he attended school.

In March of 1881 the late Henry Lydall, William Foulds, Sr., and Mr. Straw organized the Lydall & Foulds Paper Company, which was incorporated in 1889 and Mr. Straw made treasurer, a position he has held since then. In the early days of the partnership Mr. Straw devoted his whole time to the operation of the mill at Lydallville. This mill was later destroyed by fire and the company acquired the mill at Parkerville.

Mr. Straw was also elected vice-president of the Manchester Water Company, which was incorporated in February of 1889, and in 1916 he succeeded the late William Hamlin Childs, of Manchester and Brooklyn, who organized the water company, and became secretary and treasurer of the latter company, a position he retained until his death. When Mr. Childs moved his family to Brooklyn, Mr. Straw, whose wife was Miss Carrie Cone, daughter of the late Arthur Cone of Manchester Green, acquired the residence at 74 Woodbridge street which the family has occupied since. Besides his widow he leaves one son, Harry C. Straw of Brookfield street, two grandchildren, and one sister, Mrs. William Foulds, Sr., of this town, who is spending the winter at Sarasota, Florida.

Mr. Straw was very well liked by friends who knew him best. Quiet and home-loving, he never sought public office and the only fraternal organization with which he was affiliated was Manchester Lodge No. 73, A. F. and A. M. He was a sufferer from rheumatism for more than thirty years, but he bore his affliction with fortitude and always greeted his friends with a smiling face, when they came to call.

Tissue Paper Manufacturers

The Tissue Paper Manufacturers Association met on Thursday afternoon, February 18, at the Hotel Pennsylvania, and elected the following officers for the forthcoming year:

President, M. L. Dinkelspiel, National Paper Products Company, Carthage, N. Y.

Vice-President, L. G. Wood, Northern Paper Mills, Green Bay, Wis.

Secretary, Herbert Thwaite, 270 Madison avenue, New York.

Executive Committee: A. E. Cofrin, Fort Howard Paper Company, Green Bay, Wis.; H. G. Wintgens, Hoberg Paper & Fibre Company, Green Bay, Wis., and Roger W. Bell, A. P. W. Paper Company, Albany, N. Y.

Scandinavian Paper and Pulp Directory Out

The English edition of the Paper and Pulp Makers' Directory of Sweden, Norway, Denmark, and Finland, published by Hugo Brusewitz Aktiebolag, of Gothenburg, Sweden, is off the press. The directory gives full and minute particulars about all pulp and paper mills in the Scandinavian countries, such as kinds of goods manufactured, the names of the owners, the capital invested, reproductions of trade marks, information about the machinery, annual production, agents in different countries etc. This edition has practically arranged indexes, and map in colors, where all the mills are marked out. The existing sales contract rules for paper and pulp are also given. The price of the English edition is 15 Swedish crowns.

Grinding, Care and Upkeep of Paper Mill Rolls

Lobdell Car Wheel Company, of Wilmington, Del., have produced a very interesting book under the title of "The Grinding, Care and Upkeep of Paper Mill Rolls." This book is practically a treatise upon this "vital subject," and will be found of inestimable value to all paper and pulp mill operators. The book comprises thirty pages and is widely illustrated. A copy may be had gratis upon written application to the Lobdell Car Wheel Company, Wilmington, Del. Simply ask for Booklet L32.

C. F. Black Goes with Farnsworth Co.

The Farnsworth Company, Watertown, N. Y., announces that C. F. Black, 44 St. Paul Road, Ardmore, Pa., formerly sales manager for the Penberthy drying systems, has accepted a position with it for the selling of the Farnsworth drying systems, heat reclamation systems, and the various types of steam plant utilities that the company manufacturers for the reclamation of heat, increasing drying capacity and saving coal.

Ross Equipment Will Heat and Ventilate

THE NEW MODERN PULP MILL OF THE

Weyerhaeuser Timber Company

Longview, Washington

Collaborating with Mr. O. C. Schoenwerk, Consulting Engineer of the Weyerhaeuser Timber Company, Ross engineers designed and installed the Heating and Ventilating and Vapor Exhaust Systems for this new Pacific Coast pulp mill. The main Ross Heating and Ventilating System is designed to take care of the requirements in the wet end of the machine room which houses a Minton type pulp dryer. It will also maintain ideal conditions in the breaker beater room. Ross Unit Heaters of the floor type will be utilized for heating the dry end of the machine room.

In the bleaching plant, there are four separate Ross Systems, each consisting of an exhaust fan and duct work from the top of the tanks to draw the vapor from the tanks, discharging it directly to the atmosphere.

Another modern mill — another Pacific Coast installation of Ross Systems.

There is always the need for good heating and ventilating — and the best system is the ROSS system —

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HEATING—VENTILATING—DRYING

New York Trade Jottings

The Tissue Paper Manufacturers Association has leased space at 270 Madison Avenue, New York.

* * *

Beekman Paper and Card Company, Inc., of 137 Varick street, New York, has been appointed distributors of Dial Bond, manufactured by the Crocker-McElwain Company, Holyoke, Mass.

* * *

Following a short recess, due to the activities of "Paper Week," the regular weekly luncheons and meetings of the Eastern Division of the Salesmen's Association of the Paper Industry will be resumed next Tuesday, March 1, at George's Restaurant, New York.

* * *

The Joint Committee on Approved Pulp Testing Chemists for the Paper Industry of the United States, with headquarters at 370 Lexington Avenue, New York, has accepted Clifford Parch, of the Eastern Manufacturing Company, Bangor, Maine, as an approved mill pulp chemist, and he is listed as such, effective February 15, 1932.

* * *

George W. Millar & Co., Inc., general paper merchants, of 284-290 Lafayette street, New York, announce the appointment of W. H. Martens as manager of the Mill Supply Department, succeeding the late George W. More. J. E. O'Brien and A. S. Feile, Mr. Marten's associates, will aid and co-operate in carrying on this valuable service to the manufacturers.

* * *

Russell S. Madden, vice-president of the American Writing Paper Company, will address the members of the Cotton Rag Division, of the National Association of Waste Material Dealers, Inc., at its meeting to be held at the Hotel Astor on Wednesday morning, March 16. Mr. Madden will discuss the growing importance which rags play in the manufacture of paper and how dealers can aid in promoting a larger use of cotton rags. Mr. Madden is assured of a good attendance as the cotton rag branch of the waste material industry is fully alive to the importance of anything which will aid in creating a larger demand.

* * *

The Waste Paper Institute, which has had a very successful association year since the amalgamation which took place last March, is scheduling a series of meetings to be held in New York during the convention period of the National Association of Waste Material Dealers, Inc., of which it is a divisional organization. The executive committee of the Institute will hold a dinner meeting on the evening of March 14, at which numerous matters of importance to the Waste Paper Institute will be considered and a greater part of that day will be devoted to the attendance of members at the Trade Practice Conference being held under the auspices of the Federal Trade Commission for the purpose of drawing up Trade Practice Rules for the industry. On Tuesday forenoon, March 15, the Institute will hold its business session in connection with a conference, at which an interesting paper will be presented. The Tuesday session will probably open at 10 a.m.

D. H. Montville Moves to Ohio

D. H. Montville, for many years representing the Shartle Brothers Machine Company, of Middletown, Ohio, has moved his home from Northampton, Mass., to Middletown, Ohio, and in future will represent his concern in the midwest and eastern territory.

Syracuse Pulp and Paper Men Meet

A meeting of the pulp and paper alumni of the New York State College of Forestry, Syracuse, N. Y. was held at the New Yorker Hotel, New York City, February 17. The meeting was attended by 25 alumni, Dean Hugh P. Baker, Professors Libby and Peterson of the College of Forestry. Professor Libby presided and introduced as speakers Dean Baker; Ripley Bowman, Secretary of the National Timber Conservation Board who attended the luncheon as a guest; Walter Glass, '17; Karl A. Swenning, '20; George French, '22; Harry E. Weston, '21; Harvey Cannon, '23; Ralph Schilly, '24; William R. Willets, '26; and Edgar Wine, '23.

The Dean described the new devolpment at the College including plans for the new Pulp and Paper Laboratory Building which is now under construction, also the changes that have been made on the staff of the College and plans for the further expansion of the pulp and paper courses and equipment which for nineteen years have been unique in education.

Mr. Bowman spoke of the work Dean Baker has been doing on the Timber Conservation Board, and special committee on Utilization.

Professor Libby called attention to the assistance which alumni could give the College in finding places for next year's graduates.

Walter Glass outlined a plan for getting more pulp and paper graduates into sales work either merchandising of paper or merchandising of equipment and chemicals to paper industries.

Harry Weston made a plea for the boys when they got out to be more active in putting their ideas and experiences into print.

George French spoke of the usefulness of the College training in the line of work to which the Western Electric Company has assigned him.

The pulp and paper courses at the College were established at the suggestion of Dean Baker in 1920 and the first class was graduated in 1923. The course itself is a combination of forestry and chemical engineering as applied to manufacture of pulp and paper and is supported by large laboratories and complete mechanical equipment, said Professor Libby.

Arrangements for the luncheon were made by Warren F. Moore, '28. Professor Libby appointed a committee to take care of the luncheon for next year. It consists of William Willets, '26, Chairman; Lionell M. Sutherland, '31 and Donald Hunter, '28.

A Correction

It was incorrectly stated in the Philadelphia letter in the issue of the PAPER TRADE JOURNAL of February 11 that "the Buck Run, Pa. mills of the General Paper Company, is now devoted to production of a full line of kraft and white crepe paper towels, which are distributed through the owners of the mills, the West Disinfecting Company, with plant at 49th street and Greys Ferry Road. George Bicking is head of the paper towel division, which is now distributing double the former quantity of towels." The item should have read that Ralph Bicking was in charge of the paper towel division. George Bicking is now at the Bureau of Standards, Washington.

C. F. Black Goes with Farnsworth Co.

C. F. Black, for many years identified with the pulp and paper industries, more recently as representative of the Penberthy Injector Company, of Detroit, Mich., is now associated as Eastern representative with the Farnsworth Company, of Watertown, N. Y.

1932
EDITION

57th
CONSECUTIVE
ANNUAL EDITION

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SOUTHERN WOODS FOR PAPER PULP

The South is now recognized as the center of the kraft paper industry, but it has taken many years to start this natural development, one which should have begun 50 years ago, asserts the *Chronicle* of Augusta, La. However, the *Chronicle* is hopeful of having a diversified wood pulp industry as the paper experimental plant in Savannah being conducted by Dr. Charles H. Herty and fostered by the state of Georgia, should make commendable progress along diversified lines.

The slash pine, the gum, the poplar, the cypress and dozens of varieties of trees that grow in the South should all be given exhaustive tests as to the different kinds of paper that may be made from them and there is no way of estimating the far reaching results of Dr. Herty's experiments.

The *Manufacturers Record,* in commenting upon the strides the South is making says:

"Rapid development has been made in the Southern pulp and paper industry during the past several years. 'The strange thing about this development,' writes Parker K. Baird of the United States Forest Service, 'is that it has been so long coming.' He shows that the South contains a vast reservoir of pulp wood and that conditions are favorable for maintaining this supply perpetually for it is capable of producing stands of wood suitable for pulping purposes in approximately 25 years, a rate impossible elsewhere in the country except in the Pacific Coast region.

"The United States Government recognizes the South's advantages in paper making and it has been constructively working to bring about the fullest utilization of Southern forest products. Since the beginning of 1930 about one-third of the activities of the pulp and paper section of the Forest Products Laboratory have been devoted to problems related to the utilization of Southern wood. The principal pulp product of the South at present is the kraft type best fitted for such products as brown wrapping paper, bag paper, container board, and similar products. However, Mr. Baird states that 'it can now be said that the South dominates the American kraft pulp industry.' He points out that so long as kraft pulp is the only paper product of the South the situation will be economically dangerous; the South needs a diversified pulp industry."

There is no way of estimating what scientific reforestation, together with the natural growth of our native trees, may do towards making the South in the future a great wood pulp center.

FOREIGN PAPER TRADE IN 1931

Exports of paper and paper products from the United States during the calendar year 1931 were valued at $22,419,743, a decrease of 26 per cent compared with the year 1930 according to the Paper Division of the Department of Commerce. This loss was shared by practically all commodities embraced by this group, the only exceptions being cash register and adding machine paper, the exports of which totaled $686,105 and showed a gain of 38 per cent, greaseproof and waterproof paper, which amounted to $974,505, and were 31 per cent higher, and overissue and old newspapers, which amounted to $1,538,564 and represented a gain of 13 per cent over 1930.

Slight decreases occurred in exports of paper bags, toilet paper, other paper board, vulcanized fiber sheets, strips, rods and tubes, whereas the losses in our exports of news print, cover paper, paper towels and napkins, box board, bristols and bristol board sheathing and building paper, filing folders, index cards and other office forms, boxes and cartons and surface coated papers ranged from 22 to 33 per cent. The heaviest decrease was in exports of papeteries which declined 52 per cent, followed by book paper, not coated, with a 47 per cent loss—Europe taking 80 per cent less of this product, Canada 55 per cent less, Mexico and Cuba 50 and 45 per cent less, respectively, while to South America, China, Hongkong and Kwantung, Philippine Islands and Australia the decreases ranged from 32 to 35 per cent, compared with 1930. Exports of wrapping paper, tissue and crepe paper, fiber insulating lath or board, wall board of paper or pulp, blotting paper, other writing paper, wall paper and envelopes registered losses between 36 and 45 per cent.

Exports of paper base stocks in 1931 totaled $3,714,499 compared with 4,128,138 in 1930. Sulphite wood pulp exports amounted to $2,251,130, being an increase of 34 per cent over the preceding year. All other paper base stock exports declined, those of pulpwoods being 50 per cent lower, of soda pulp, 34 per cent, of other wood pulp 76 per cent, and or rags and other paper stock 19 per cent.

Imports of paper and paper products during 1931 were valued at $125,623,138, or a decrease of 15 per cent compared with those of 1930. News print imports totalled $112,169,627, representing a 15 per cent decrease in value and 10 per cent quantity. Imports of pulp board in rolls

increased 50 per cent, of leatherboard, test board and wall board, 17 per cent and of cigarette paper, cigarette books and covers, 25 per cent, whereas, heavy decreases occurred in our imports of kraft wrapping paper, other wrapping paper, writing and drawing paper, hanging paper and surface coated papers.

Imports of paper base stocks, having a total valuation of $75,193,286, declined 30 per cent compared with 1930. A notable increase is noted in imports of bleached sulphate from Canada, being 84 per cent higher than in 1930. There was also an increase of 13 per cent in our imports of this commodity from Sweden. Imports of unbleached sulphate wood pulp declined 27 per cent, of unbleached sulphite wood pulp, 36 per cent in value, and 20 per cent in quantity and of bleached sulphite 16 per cent in value, but only 1½ per cent in quantity.

Imports of pulpwood were valued at $11,211,298 in 1931, or a decrease of 35 per cent over 1930. Rough and peeled spruce imports were 37 per cent lower, but those of rossed spruce showed an increase of 25 per cent in value, but only 7 per cent in quantity.

Swedish Wood Pulp Workers Cut

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 24, 1932.—The Swedish Wood Pulp Association has announced a 6 per cent cut in hourly wage rates and a 12 per cent cut in piece-work rates, effective February 23 according to a radiogram to the Department of Commerce from Acting Commercial Attache WacLean, at Stockholm. The same message states that a strike involving 17,000 workers is looked for, since representatives of the mill owners and the operatives were unable to reach an agreement. The Paper Mills Association will call an early meeting to determine its action in the circumstances.

Another report from Sweden states that the wood pulp market there continues dull with few orders coming in and those placed covering only small amounts, and for prompt shipments. Practically no large orders for delivery during the 1932 shipping season have yet been received. The price market for both chemical and mechanical pulp continues weak.

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 24, 1932.—The Lindemeyr Paper Company has been awarded the contract for furnishing the Government Printing Office with its annual supply of news print paper, beginning March 1, estimated at 3,000,000 pounds at 2.295 cents per pound, bids for which were reopened on February 15.

The R. P. Andrews Paper Company will furnish 330 pounds of 26x43 white sensitized paper at $95 per M sheets, bids for which were received on February 10.

The Oles Envelope Company will furnish 200,000 No. 2 kraft envelopes at $208.00.

Pejepscot Opens Chicago Office

Arthur Schroeder, manager of sales, Pejepscot Paper Company, 42 Broadway, New York, N. Y., has announced the opening of a Chicago, Illinois, sales office, at Engineering Building, 205 West Wacker Drive, Mr. Harold M. Fox will be the sales representative.

China-clay (Kaolin)

THE MINERAL INDUSTRY OF THE BRITISH EMPIRE AND FOREIGN COUNTRIES—China-clay (Kaolin); H. M. Stationery Office, London, 1931, price 1s.6d.

China-clay has been employed for centuries as one of the chief ingredients of body-mixes for the manufacture of pottery, but it is not generally realised that only about one-third of the total production of china-clay is now utilised for this purpose, by far the largest proportion being employed in the paper industry. The users of china-clay, however, are very numerous, not the least interesting being the medicinal, pharmaceutical and toilet preparations made from this material. It has been prescribed, for instance, as an absorbent of toxins of the alimentary canal and has been claimed to give excellent results in the treatment of Asiatic cholera, while it is used as a raw material for face powders, soaps and dental creams.

It is interesting to note that next to coal, china-clay is Great Britain's largest raw mineral export.

These and many other interesting facts have been brought together in a new publication on *China-clay* (Koalin) now issued by the Mineral Resources Department of the Imperial Institute in their well-known series of monographs on economic minerals.

This monograph, consisting of 100 pages, deals succinctly, yet comprehensively, with the nature and origin of china-clay and includes descriptions of occurrences of the material in over 40 British and foreign countries. Consideration is also given to the methods employed for winning and treating the raw material both in the United Kingdom and abroad with special reference to modern improvements in technique, the trade classification of the numerous grades of prepared clay, its uses, prices, together with statistics of production, imports and exports for a number of years.

The section on the actual and potential utilisation of the waste products resulting from the refining of china-clay is of particular interest, since it has been estimated that in Cornwall alone some 4 million tons of waste material are annually taken to the dumps, which form such a characteristic feature of the clay districts. The work concludes with a selective and classified bibliography.

An up-to-date and comprehensive monograph on China-clay has been long overdue, and the present work seeks to meet this need.

Gatineau Installs New Generator

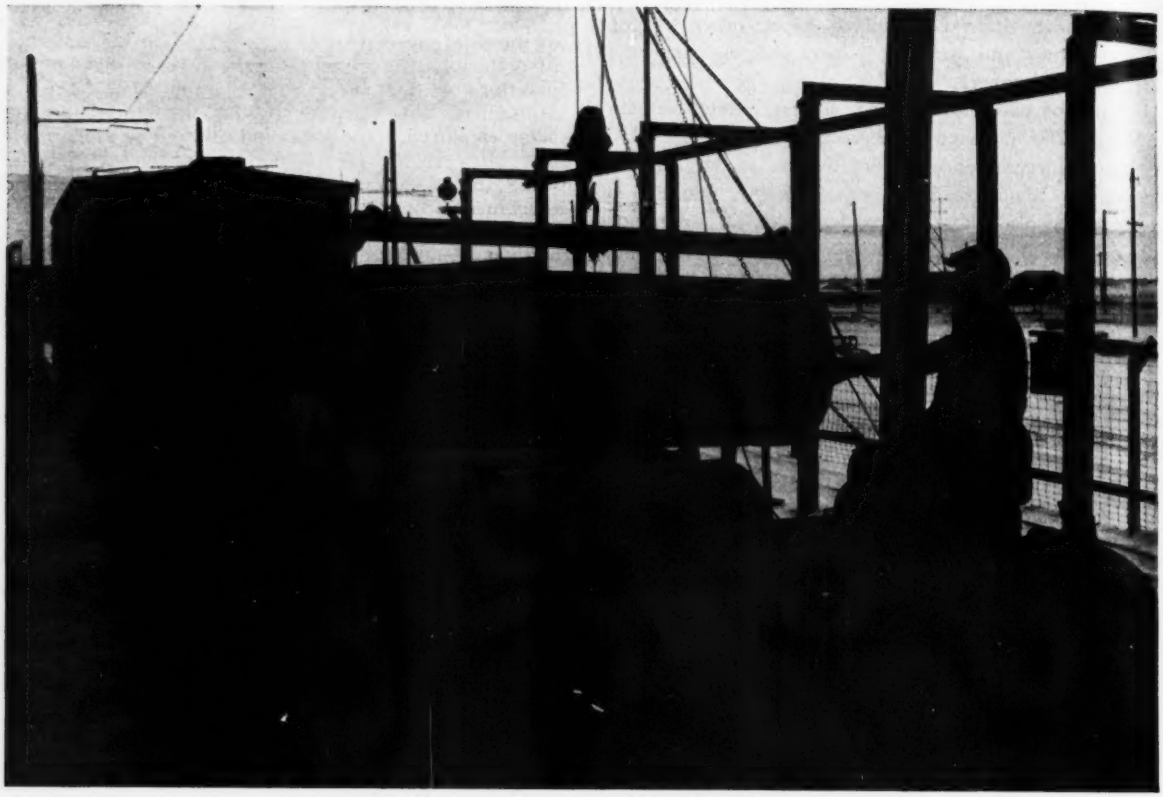
[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 23, 1932—Gatineau Power Company, a subsidiary of the International Paper Company, has completed the installation of the seventh 34,000 h.p. generator, in its plant at Paugan, Que., bringing the total capacity of that plant up to 238,000 h.p. On the Gatineau River as a whole, the aggregate installed capacity of the company's plants is now 472,500, and other plants on the Ottawa River and tributaries further raise the total to 574,700. In addition the company has 104,400 h.p. in other hydro-electric plants, making a grand total of 679,100 h.p.

Another S & W Bag Machine to Hammond

The Smith & Winchester Manufacturing Company, South Windham, Conn., has just shipped a one-quarter barrel valve bag bottomer to the Hammond Bag and Paper Company, Wellsburg, W. Va. This new machine turns out 3,000 bottoms an hour for 20 x 39 inch paper bags. It is the eleventh Smith & Winchester machine that this concern has purchased.

"A THING WORTH DOING"



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Electron Tubes in the Paper Industry*

By C. P. Bernhardt[1]

Your modern radio and talking motion picture entertainment would be impossible without electron tubes. They have been in everyday general use in the telephone, telegraph and radio fields for a number of years. Partially as a result of this previous experience electron tubes are becoming an important factor in solving the problems of industry. In these devices there are available for the first time instruments and relays, whose time of operation is practically instantaneous, and which can be operated or controlled by many different forms of energy, such as ultra-violet radiation, visible light rays, infra red or heat rays, minute changes of voltage or current and infinitesimal changes in electro-magnetic or electro-static conditions. It is the intention in this paper to present the fundamentals of operation, and the practical application of some of the more important of these electron tubes.

Obviously devices as versatile as these would find outlets for their application in numerous fields, and this is what has occurred. The present and future applications of these electron tubes fall into four general main classifications:—

(1) Applications in which they perform an operation which cannot reasonably be done by any suitable available equipment.
(2) Applications for which apparatus is available but the operating time of which is considerably slower than desired.
(3) Applications for which apparatus is available but the mechanical parts of which are necessarily so complicated as to require excessive maintenance.
(4) Competitive applications, where electron tubes can only be justified from the standpoints of space requirements, performance or economy.

An automatic paper spot cutter is an example of the first classification. This device utilizes a photo electric cell or electric eye to automatically control and reguiate the speed of a rotary cutting knife, from a spot printed on the paper. The modern electron

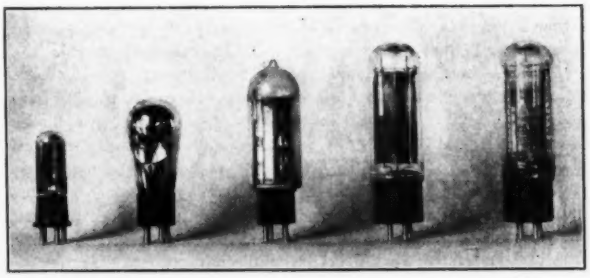

FIG. 1
Five typical photo electric tubes having different response characteristics.

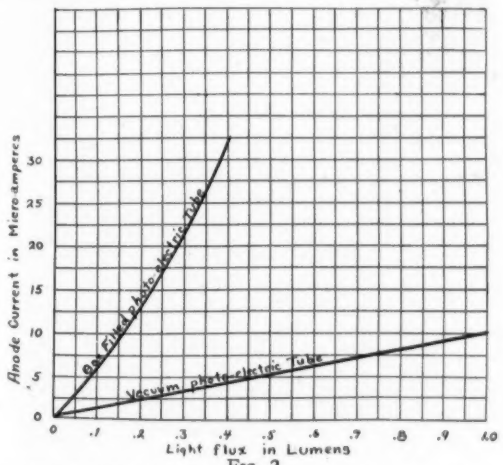

FIG. 2
Illumination characteristics for gas and vacuum type photo electric tubes.

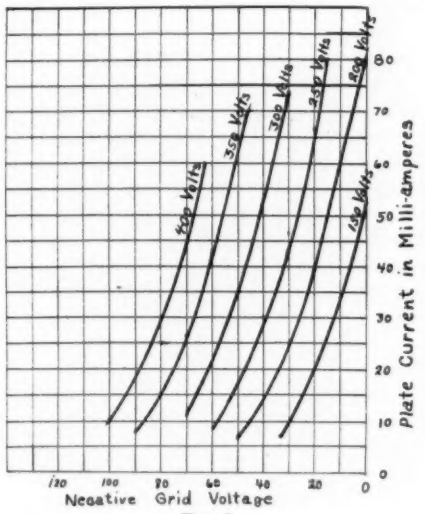

FIG. 3
Relation between grid control voltage and output current at various plate voltages of an amplifier tube.

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Contribution of the TAPPI heat and power committee.

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tube theatre lighting control switchboard is a representative example of the fourth classification, in that it requires only one-fifth of the area of the older conventional types of equipment for its installation. In addition a greater flexibility of color control is attained, and the work operation is simplified.

In comparing the advantages and disadvantages of electron tube equipment consideration must be given to the absence of moving parts with a consequent reduction in maintenance expense. In addition the possibility of initiating the control by various mediums such as small changes in light, current, voltage, resistance, electrostatic capacity, etc. offers advantages which cannot readily be obtained by any other means.

The fragility of electron tubes has been much discussed as one of their great disadvantages. Obviously they must be handled with some care and their mounting designed to meet the operating conditions encountered. The tubes are, however, considerably more sturdy than they actually appear and it is doubtful whether many applications will be found in which it is impractical to apply them because of their seemingly fragile nature. For example they are being used for automatic train control, where they are subjected to the vibration and jolting of a locomotive.

Tube life and replacement is another factor sometimes pointed out as one of their disadvantages. While this was true in the early stages of their communication applications, developments have taken place which permit estimates of typical tube life at rated load to run from 2000 to 6000 hours of actual use. These values may be considerably increased by operating the tubes well below their rated load. Tube life therefore becomes a matter of economics in applying them to a particular application. For instance, in the automatic synchronizer referred to more in detail later, the tube life expectancy is from 5 to 20 years.

Electron tubes of various types and characteristics are available. Those sensitive to radiant energy which may be either in the form of ultra-violet, visible light, or infra-red radiation are known as photo-electric cells, and are more commonly referred to as "the electric eye."

Theory and Characteristics of Photo-Electric Tubes

There are three different classes of photo-electric devices available.

(1) Photo-conductive units, in which the ohmic resistance of a substance such as selenium, varies with the amount of light falling upon it.

(2) Photo-voltaic units such as copper oxide or liquid cells, and as the name implies they generate a voltage under the action of light.

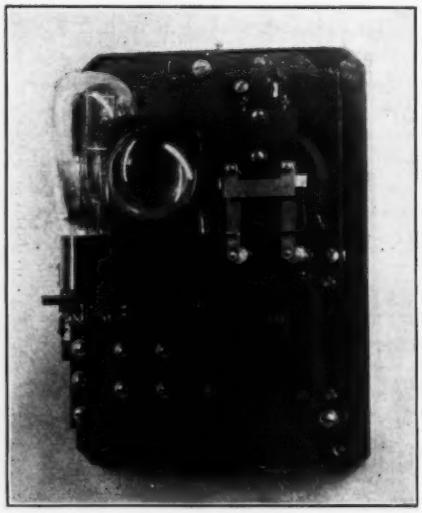

FIG. 4
A light relay with self contained photo electric tube (cover removed).

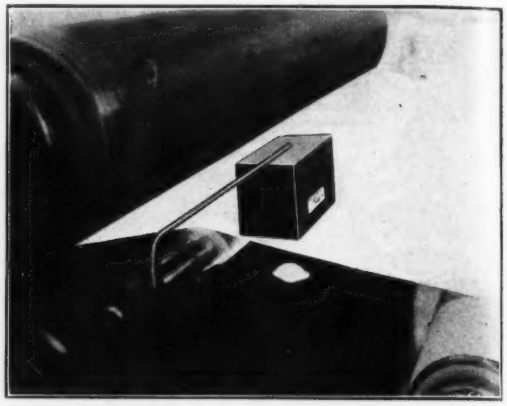

FIG. 6
A paper break indicator installation.

(3) Photo-emissive or photo-electric tubes. This is the most important class, and in these the action of light causes emission of electrons from a sensitive surface known as the "cathode," the released electrons being drawn to a positively charged anode.

The photo-electric tube consists as shown in Fig. 1 of an anode and a cathode sealed in a glass envelope. The alkali metals lithium, sodium, potassium, rubidium and caesium have been used on the cathode to form the light sensitive surface. Caesium, however, is the more commonly used since its color sensitivity in the red end of the spectrum is higher than that of the other alkali metals. This is important since an ordinary incandescent lamp, which is generally used as a light source, radiates maximum energy in the red region.

A tube particularly responsive to ultra-violet radiation and using metallic uranium as a cathode, enclosed in Corex glass has been developed.

It is apparent therefore that the type of cathode and its treatment during manufacture determine the color or wavelength of radiation to which the tube will respond.

These photo-electric tubes are available in two different types, vacuum or gas filled. The two types are structurally identical, and in both types the light liberates electrons from the cathode or sensitive surface. If positive potential is applied to the anode

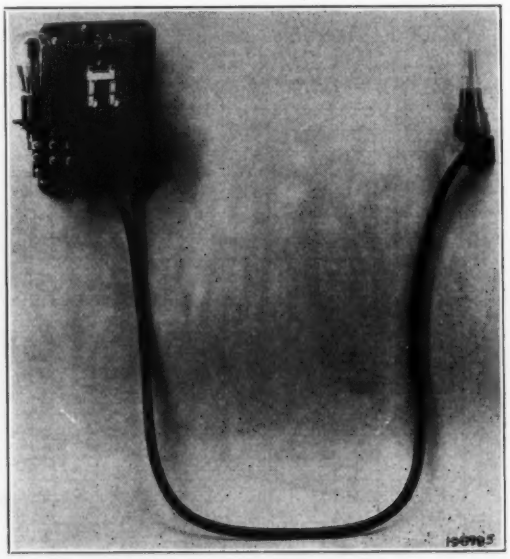

FIG. 5
A light relay with photo electric cell on extension conductor (covers removed).

and negative potential to the cathode, the light emitted negatively charged electrons will be attracted to the anode. In the vacuum type of tube this electron flow constitutes the entire current. In the gas filled tube, greater response is obtained due to gas amplification and secondary emission. When the applied voltage between the anode and cathode is greater than 30 volts, the electrons have sufficient velocity to knock out other electrons from the atoms of the gas in the tube, with which they collide. Thus the combination of these two factors permits the gas filled photo-electric tube to pass from 3.5 to 10 times as much current as the vacuum type of tube. This relationship in a typical tube is shown in Fig. 2.

Although the current output of either the vacuum or gas filled tubes is considerably less than the photo-conductive, or photo-voltaic types, they have certain inherent characteristics which make them better suited for most applications. They are much more uniform, constant, long lived, rugged mechanically and their response is practically instantaneous. Temperature has no great effect on their sensitivity (below 158 deg. C.) and their "dark" impedance or resistance is practically infinite, thus eliminating "dark" current. In the vacuum type the response is an absolutely linear function of the amount of light falling upon the cathode, and in gas filled tubes while the output is not an exact linear function, it may for most purposes be considered substantially so.

This characteristic of proportional variation of output current to light intensity is a most important one, and most of its applications are based upon this.

This output current of a photo-electric tube as shown in Fig. 2 is in microamperes, and to be of use it must be amplified sufficiently in order to operate standard available equipment, such as indicating and recording meters, relays and other devices.

Amplification of Photo-electric Tube Outputs

The thermionic amplifier provides a means of obtaining this amplification, which will be proportional to the intensity of the light falling on the photo-electric tube. This amplifier tube is not necessarily restricted to the amplification of photo-electric tube outputs, since it will amplify any voltage change impressed upon it, and thus has many other possible applications. A brief resumé of its fundamental principles and characteristics is therefore well worth while considering.

This other member of the electron tube family is a three element tube depending for its operation upon the emission of electrons from a filament which is heated by an electric current. The three elements in the tube are; a filament which emits the electrons upon being heated, an anode or plate which always has a positive potential applied to it, and the grid or controlling element. If a circuit is arranged so that positive potential is applied to the anode or plate and negative potenial to the filament, then if the filament is heated and a meter connected into the plate circuit, a current would be found flowing. If the connections were reversed so that the negative potential was applied to the plate, no current would flow. As in the case of the photo-electric cell, the emitted negatively charged electrons from the filament are attracted to the positively charged anode or plate. The amplifier tube therefore acts as a rectifier. If it is connected to an a.c. circuit the current passed by it will be half wave pulsating direct current.

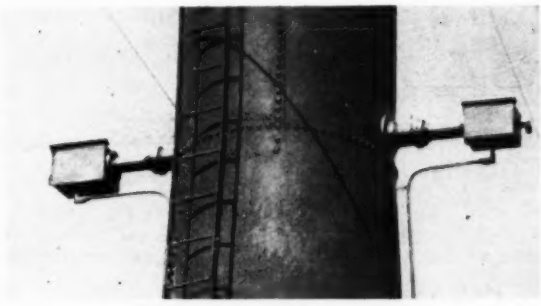

FIG. 9
Installation of smoke indicator and recorder.

Thus far, we have not considered the action of the grid, which is placed between the filament and the anode and controls the flow of the emitted electrons. In the previous case, positive potential was applied to the anode in order to attract the electrons therefore if a negative potential is applied to the grid electrons will be repelled and thus reduce the flow between the filament and anode. If the grid is made sufficiently negative with respect to the filament, no electrons would reach the anode and therefore the current passed by the tube would be zero. The amount of power required to control the grid is very small compared to the possible output of the tube and thus these tubes are excellent amplifiers. The relation between grid control voltage and output plate current at various plate voltages is shown in Fig. 3.

For example, consider the amplification of photo-electric currents, which are in the order of a few microamperes. The effective resistance of a photo-electric tube is many megohms and although the energy output is very small, a slight change in photo-electric current is sufficient to vary the voltage drop in this high resistance circuit by several volts. This voltage variation if applied to the grid of a thermionic amplifier tube is sufficient to change the anode or plate current by several milliamperes, which in turn will operate standard relays and instru-

FIG. 7
A new photo electric lighting control relay with panel cover removed showing adjusting devices.

FIG. 8
By using a lighting control relay to turn on the lights in this factory aisle proper illumination is insured.

ments. This amplification occurs practically instantaneously, for example, a change in light on the photo-electric tube will vary the amplifier current proportionally in from .001 to .0001 seconds.

This same circuit arrangement can be used on both direct and alternating current. Because of the rectifying action of both the photo-electric and amplifier tubes, when used on a.c. the output current will only flow when both tube anodes are positive. The resultant output is therefore a half wave pulsating direct current, whose effective value is dependent upon the illumination of the photo-electric tube. This pulsating output current can, of course, also be used to operate standard relays and instruments.

Photo-Electric Light Relays and Recorders

It is no longer necessary for the prospective user of photo-electric apparatus to begin at the bottom and design his own equipment for the simpler and numerous types of problems apparent to the alert plant or production engineer. Equipment suitable for widely different types of applications complete with amplifying arrangement and other necessary incidental devices has been introduced by several electrical manufacturers.

At present the greatest number of applications of photo-electric equipment are those in which an external electrical circuit is controlled by either a definite change of illumination, or the interception of a beam of light by a more or less opaque object. This latter application is perhaps the most simple to apply suitable apparatus for and by this method objects passing through a light beam may be accurately counted. The actual counting is done by a magnetic counter controlled by a small relay which operates from the amplified photo-electric current.

The complete light relay shown in Fig. 4 includes a small relay whose contacts can be connected to an externally operated device. For some applications space limitations are such that the type shown in Fig. 5 would be preferable since its photo-electric cell is provided with a flexible extension cord and thus the larger part of the equipment can be mounted at a more convenient place.

Equipment such as this is being used commercially to count theatre patrons, automobiles, sheets of paper, hot steel ingots, incandescent lamp bases, etc., in fact, any object with which direct mechanical contact would be either impossible, objectionable or impractical.

These inherent advantages make this photo-electric equipment admirably suited for limit switch operations. By their use the speed of automatic machines has been considerably increased and results obtained which would be impossible otherwise. They have been used to initiate shearing operations where an accurate length of manufactured article was required, as floor levelling

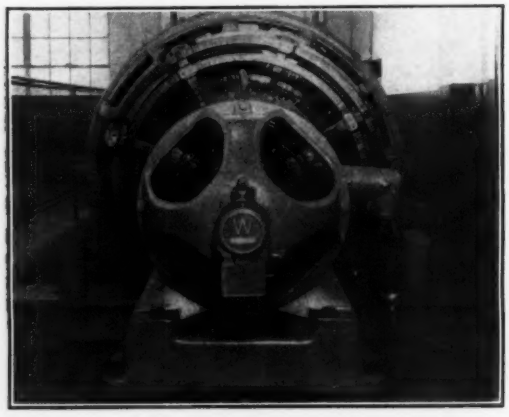

FIG. 11
Light sensitive tubes, mounted in the short vertical cylinders on the bed-plate, operate the circuit breaker should the commutator of the generator flashover.

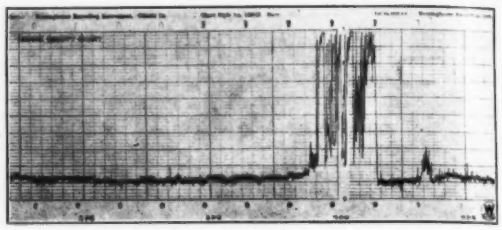

FIG. 10
Section of smoke recorder chart. Irregular coal feed shown at 2:20 P. M. and blowing soot at 3:00 P. M.

control devices in elevators, and as safety guards to prevent operation of machinery while the operators hand or body was in too close a proximity. In paper bag manufacture they are being used to initiate an operation when the bags are in proper position and they are serving as level indicators for liquids and also solid materials being dumped into hoppers.

Photo-electric devices are inherently sensitive to smaller changes in illumination than those just previously considered which involved practically the breaking of a beam of light.

The paper break indicator installation shown in Fig. 6 is a representative one which involves a change in intensity of light beam. In addition to sounding an alarm, a graphic voltmeter can be used in conjunction with this equipment to give a permanent record of the exact time each break occurred, and the length of time the paper was off the machine. This recording meter can, of course, be located at any desired place entirely apart from the paper machine. If this device were located at the wet end of the paper machine it could also be arranged to turn on the water spray automatically in the event of a paper break. By the use of several of these on one paper machine, complete data would be available for the mill management's use and production should consequently be more in line with estimates.

Automatic control of lighting insures that lights will be "on" when required and only when required. Observations in many offices and factories indicate that the lights are either wastefully used or not turned on for a considerable period of time after semi-darkness appears. Efficiency of workers is consequently lowered. The same conditions are true of advertising signs, which should be illuminated when they will be most effective, i.e., during the twilight hours—and on dark days. Obviously a light sensitive relay would perform this function much better than a time clock.

Such a lighting control relay is shown in Fig. 7. Adjustments are provided which allow it to be used over an illumination range of 6- to 150-foot candles. It may be installed either indoors or outdoors and its operation is not affected by illumination from the lights which it controls. Fig. 8 shows a factory aisle whose illumination was controlled by one of these lighting control relays. A comparison made between this aisle and an identical one whose lighting was manually controlled indicated a saving in power consumption of 50 per cent and the average level of illumination was maintained with more uniformity.

Photo-electric tubes in conjunction with amplifiers can be used to record small variations in light transmission through various substances. A commercial application of this in the form of a photo-electric smoke indicator and recorder is shown in Fig. 9. It consists of two main parts:— (1) The light source unit, and the photo-electric tube and amplifier unit, mounted on opposite sides of the stack. (2) The indicating or recording instruments located in the boiler room or any other convenient location. A beam of light from the light source is transmitted through a 4-inch pipe which passes through the stack to the photo-electric tube. This pipe has an orifice of standard length cut in it and thus the diameter of the smoke stack has no influence on the calibration of the equipment. Smoke in passing through this orifice varies the amount of light falling on the photo-electric tube and when properly calibrated, the amplifier

current is a measure of the smoke density. A section of the smoke recorder instrument chart is shown in Fig. 10, the smoke density under good firing conditions being indicated as ½ Ringelmann or 10 per cent.

Another example of the versatility of this equipment is its use as a flashover protective relay on a d.c. generator shown in Fig. 11.

Sorting and Inspecting by Photo-Electric Equipment

The use of photo-electric equipment for sorting and inspection is increasing rapidly. Generally speaking, these problems are somewhat more difficult to solve than those previously discussed. However, considerable work has already been done and numerous applications are working entirely satisfactory. For example, tin foil wrapped packages are inspected by light reflection for proper labeling. If the paper label is in position, the light reflected is of a rather low intensity and the package is carried forward on the conveyor. However, if the label is not placed properly or is missing entirely, the reflected light intensity is of a relatively high order and a solenoid operated device actuated by the photo-electric amplifier diverts the package. This application was considerably simplified because of the large difference in light-reflecting characteristics under the two conditions.

A card sorting machine has been developed which sorts returned electric light bill stubs. This is done by means of a coding of small dots previously placed on the card by the regular address stencil. It will arrange the stubs in exact numerical order and they can be in a badly mutilated condition and still be acceptable for sorting.

Applications such as inspection for spots, holes and other imperfections are obvious and their successful solution is determined only by the degree of perfection required from the photo-electric equipment.

Color responsive photo-electric apparatus has in some cases filled a long felt want. This is particularly true of a color analyzer which automatically determines the color distribution curve, throughout the visible spectrum of the sample being studied. This is, however, only suitable for laboratory use. A commercial color matching problem which was successfully solved involved the grading of cigars photo-electrically. Similar equipment was used to automatically sort and reject black beans from the standard white ones desired. It would seem that equipment similar to this could be used successfully in the paper industry to inspect for quality of finish and gloss.

In many applications the variation in light transmission through a substance can be successfully used to advantage. The photo-electric smoke recorder previously described is an example of just this sort of an application. In the paper industry it would seem to be practical to use photo-electric equipment for the determination of paper transparency, wood pulp percentage in suspension, paper stock consistency, digester liquor concentration, etc. A unit such as shown in Fig. 12 might be used for experimental work of this nature.

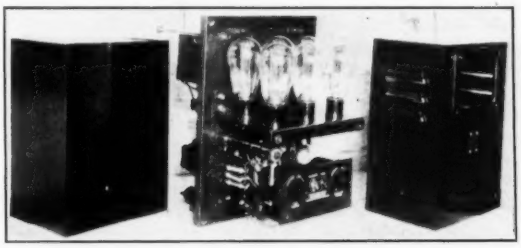

FIG. 13
An electronic generator voltage regulator.

The Thermionic Vacuum Tube as General Purpose Amplifier

The thermionic amplifier tube previously referred to as an amplifier of photo-electric tube outputs can also be used generally in any application which requires an extremely sensitive device for the detection of small changes in voltage, current or frequency. Having no moving parts, its response is practically instantaneous and the grid power required is infinitesimal, although the controlled plate current of a tube may be as high as .25 amperes.

The electronic voltage regulator shown in Fig. 13 is a recent commercial application of this type where speed of response, simplicity of adjustments, sensitivity and ease of maintenance are factors of paramount importance. The tube shown beneath the horizontal panel is the regulator element and its output is amplified by the six tubes mounted above it. These latter furnish directly the required excitation current to the field of the generator. By minor modifications this equipment can be built to control either a.c. or d.c. generators of medium capacity. The complete absence of vibrating relays, contacts or other moving parts make the simplicity of this regulator apparent.

Another commercial use of these thermionic amplifier tubes is shown in Fig. 14, which illustrates a new automatic synchronizer.

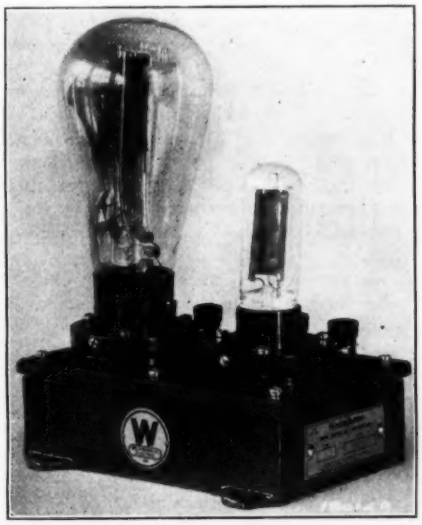

FIG. 12
Amplifier Unit.—Amplifier tube shown at left and photo electric tube at right.

FIG. 14
A thermionic synchronizer (cover removed).

The principle of operation is based on impressing upon the grids of the two tubes, the rectified beat frequency between the two systems being synchronized. Adjustments are provided for variation of the frequency difference at which it will synchronize, and another adjustment even permits variation of the angle of advance and in this way takes into account the time required for the circuit breaker to close.

These many different and interesting applications of the thermionic amplifier and photo-electric tubes illustrate their remarkable versatility of application. These are, however, only forerunners of their many ultimate applications in industry.

Grid Glow Tubes

The electro-mechanical relays associated with the thermionic amplifier tubes previously considered are capable of handling other control circuits requiring a maximum of 2 or 3 amperes. Where larger amounts of control energy are required, it is possible to use an additional contactor of the required capacity, controlled by the amplifier relay. In some cases this is entirely satisfactory; however, in many applications this cascading of relays gives a response which is altogether too sluggish. In other applications the time period for which a condition may exist is so short that these relays will not operate properly. This latter condition was encountered in an automatic paper spot cutter in which the time of light interruption was 1/200 of a second. While a photo-electric tube and amplifier would respond to this short stimulus, it was, of course, impossible to expect this from an electro-mechanical relay.

In these cases the application of grid glow tubes has proven to be ideal. They are available in a wide range of capacities suitable for handling currents from 1/10 amperes to 300 and their time of response is in some cases practically instantaneous and in all cases much greater than actually required in industrial work. For example, a grid glow relay has been used to start a cathode ray oscillograph to record a line disturbance within a fraction of a micro-second (1/1,000,000 second) after a lightning disturbance occurred on the transmission line.

The Hot Cathode Grid Glow Tube

The hot cathode grid glow tube as its name implies is a device in which electrons are emitted by a hot cathode and the operation of the tube is manifested by a glow discharge which can be controlled by means of a grid. It is also inherently a grid controlled rectifier. The cathode, as in all electronic devices, is the source from which the electrons are given off and is in these tubes an electrically heated oxide coated filament. The tube instead of being evacuated is filled with an inert gas such as Neon or mercury vapor.

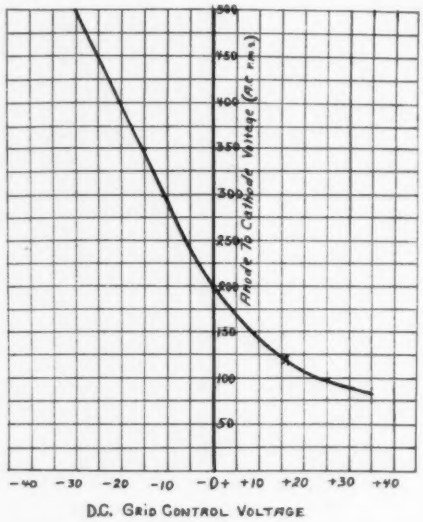

Fig. 15

A power grid glow tube. Relation between grid control voltage and applied tube voltage to pass current.

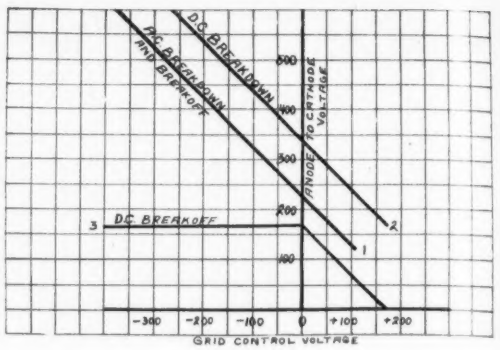

Fig. 16

A sensitive grid glow relay. Relation between grid control voltage and applied tube voltage to pass current.

These grid glow tubes differ in characteristics from thermionic amplifiers. Under ordinary conditions with voltage impressed on both the anode or plate and the grid, the tube does not pass current. For any given plate voltage there is a corresponding grid voltage at which the glow discharge takes place and thus permits the tube to pass current. If the grid potential is increased above this critical voltage the tube passes current, provided the anode or plate is positive with respect to the cathode. However, once the anode current is started the grid has no further appreciable effect on this flow of current. On direct current operation then the tube becomes equivalent to a trigger operated latching type of relay and once started, the output current cannot be controlled except by interrupting the anode potential.

On a.c. or a pulsating direct current potential, the voltage, of course, becomes zero at each zero point of the wave and the grid again assumes control and can be used to either permit or prevent the flow of anode current on the next positive half cycle. The relation between d.c. grid control voltage and a.c. anode voltage is shown in Fig. 15, thus for an impressed anode voltage of 125 a positive grid voltage in excess of 16 volts is required to permit the tube to pass current.

If an a.c. voltage is impressed upon the anode, and also the grid, the action is the same. However, if the phase relation between the grid and anode voltages are changed the point in the voltage wave at which current begins to pass in each positive half cycle will also be changed. For example, if the grid voltage were made to lag by a full half cycle no current would pass since then the grid voltage would never be positive when the anode voltage was positive.

The grid control voltage may be shifted in phase with respect to the anode voltage, in a number of ways such as: (1) small induction voltage regulator, (2) variation of the degree of magnetic saturation in a reactor core, (3) reactance-resistance bridges, (4) moving core reactors, etc. The particular type of control to be chosen then is determined more by the magnitude and type of mechanical motion or electrical change available than any other factor.

There are then two methods available of controlling these grid glow tubes when supplied with alternating current; the voltage magnitude method and the phase shift method. The phase shift method permits control of the output continuously from zero to a maximum value. The magnitude method is a control for "full on" or "all off." Some typical grid glow tubes are shown in Figs. 17, 18 and 19.

The Cold Cathode Grid Glow Tube

As might be surmised this tube is similar to the hot cathode type except that it is not provided with a heating filament. Its fundamental operation is approximately the same, and its grid controls the glow discharge. It is, however, a relay whose output is in milliamperes rather than a power device as the hot cathode

tubes are. Because of its triggering action, extremely small grid current requirements, speed of operation and long life, it is ideally suited for many applications. The curves in Fig. 16 give its d.c. and a.c. characteristics, in terms of grid control voltage required at various anode to cathode voltages.

Such equipment is being used with oil burners to supervise the pilot flame. If this flame becomes extinguished the tube operates and stops the flow of oil thus minimizing the possibilities of an explosion. In this case advantage is taken of the fact that the electrical resistance of a flame is considerably lower than heated or cold air and the flame is therefore made part of a leakage path for the grid current of the tube. If the flame goes out this leakage path resistance is, of course, increased considerably and the tube operates.

Equipment somewhat similar to this could possibly be used in the paper industry to determine and regulate the dryness of paper as it comes off the rolls. This tube is also very well suited for any application where a high resistance circuit is normally present but which is changed by certain conditions occurring. Likewise a small electro-static capacity change can be used to trigger the tubes.

Mercury Pool Type Grid Glow Tubes

In many applications comparatively large amounts of energy are required and the device supplying it must be capable of withstanding severe overloads of short duration. Since the current capacity of an electronic tube is determined by its filament electron emitting area, such a tube then would theoretically require a very large filament, which, of course, must be electrically heated. This heating energy would represent a considerable expense and materially affect the overall efficiency. A tube has been developed to meet this requirement of large overload capacity and still have a very low cost of operation and high efficiency. It is known as the mercury pool grid glow tube. Its theory of operation is essentially the same as that of the hot cathode tube, however, the filament has been replaced by a pool of mercury. A stream of electrons is obtained from an arc discharge taking place between two "keep-alive" electrodes and the mercury pool. With this type of tube currents in the order of several hundred amperes may be obtained and they can be controlled either directly or preferably by the smaller hot or cold cathode grid glow tubes.

These characteristics inherent in grid glow tubes, of extremely rapid response, ease of control, silence in operation, sensitivity and absence of moving parts have opened up a vast field of application for them and make possible the performance of the most exacting and delicate operations. They are being used as relays and also as power converters in many commercial applications.

Their diversified use as such is illustrated in some of the following applications:

The large modern theatre requires lighting control effects

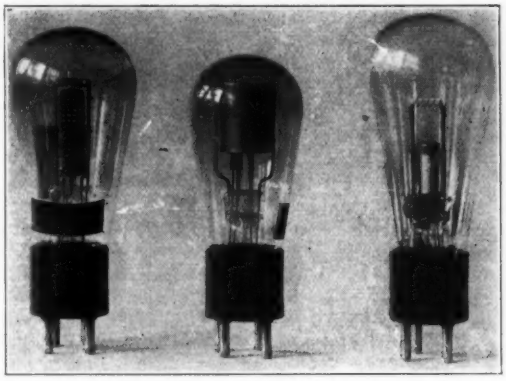

FIG. 17
Three typical grid glow tubes of .64, .03, .4 ampere capacity, reading from left to right. Tube in center is cold cathode type.

FIG. 20
A 100 ampere mercury pool type grid glow tube.

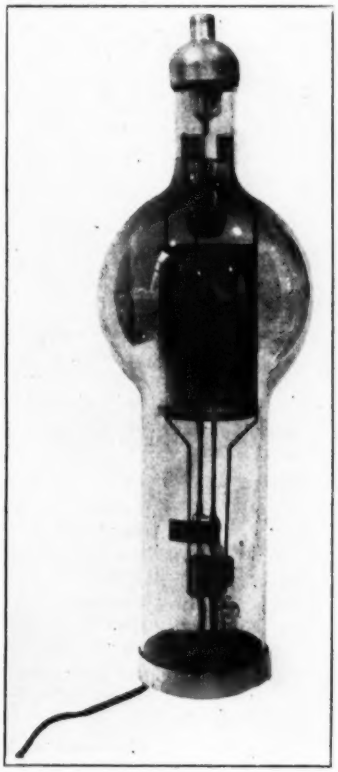

FIG. 19
A 25 ampere grid glow tube.

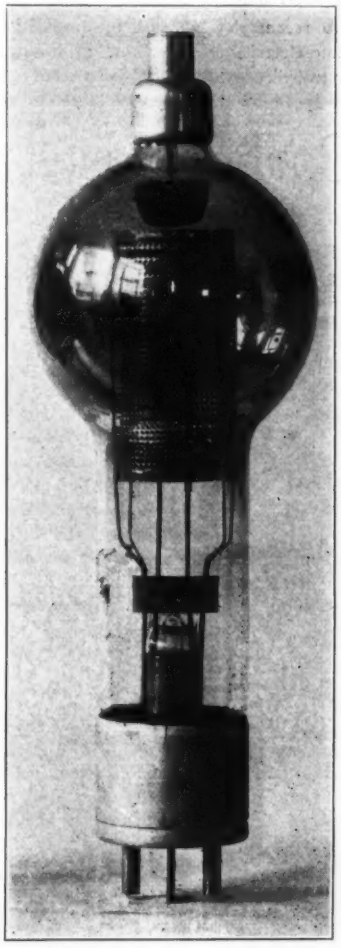

FIG. 18
Grid glow controlled rectifier.

which do not permit of controlling these required amounts of power by the use of series dimming resistors. In these installations grid glow tubes are used to provide a variable direct current for saturating core reactors. On the same iron core there is a winding which is connected in series with the lighting circuit being controlled. This series winding then functions as a reactance whose value can be changed by the degree of saturation of the iron core. Since the grid glow tube can be used as a grid controlled rectifier, and its output varied continuously from zero to a maximum, the reactance of this series winding will also be varied correspondingly, permitting more or less current to flow through the lighting circuit, and thus control the intensity of the lighting. Small units similar in size to radio type resistors are used to shift the phase of the grid control voltage and consequently a very small switchboard can control a large number of lighting circuits. In the same manner master control of any one or all colors can be effected.

A somewhat similar arrangement can be used to obtain cyclic dimming effects for floodlighting equipment, without the use of motor operated rheostats and their accompanying disadvantages.

In many processes a constant tension is required to be maintained on a winding reel, as the diameter of the reel increases or the speed of the feeding machines or process varies. Grid glow tubes in conjunction with either a moving core solenoid, or photo-electric tubes have been used to accomplish this. A modification of this type of equipment could undoubtedly be used in the paper industry for similar purposes.

A recent development in automatic paper spot cutting uses photo-electric, amplifier and grid glow tubes in combination to control directly the speed of a rotary cutter in synchronism with the speed of the paper as it comes under the knives. In this particular application the reflected, or transmitted light, from the moving sheet of paper is intercepted by the small printed spots on the edge of this paper. This light pulse interruption affects the photo-electric tube, whose output is amplified, and used to control the grid circuit of one of two hot cathode grid glow tubes. These grid glow tubes supply power directly to a fractional horsepower reversing type of motor, which in operating either increases or decreases the speed of the rotary cutter. Thus in this entire combination no electro-mechanical relays or contacts are required.

It would seem to be possible to use electronic equipment of this type to build paper thickness indicators and regulators. The sensitivity of the tubes available is such that they could be made to work within very close limits of the order of one ten thousandths of an inch.

Grid glow tubes can be used to control small d-c motors directly as in the case of the automatic spot cutter. In other motor applications they offer the advantages of quick response, smooth control from zero to maximum, and again the absence of many moving parts. With tubes available at present it is possible to supply armature power up to 25 h.p. and field excitation up to 25 k.w. The speed range which may be obtained by using these grid glow tubes is limited by the characteristics of the motor itself. The tube equipment in these cases is essentially a d-c power supply, having unusual control features, and as in all other applications where these tubes are used the control energy required for the grid circuits is very small.

The field of application for this type of equipment is practically unlimited. These grid glow tubes should be seriously considered wherever quick response relays are required, or where comparatively small amounts of direct current power of variable voltage is necessary and is to be controlled by very small mechanical movements or electrical changes.

Carbon Uses in the Pulp and Paper Industry*

By A. D. Camp[1]

Because of its low affinity for most chemical reagents, carbon has assumed a place of some importance as a material of construction in chemical industries, and since pulp and paper manufacture is one in which chemical transformations play a considerable part, carbon appears to have a number of appropriate applications in it. The initial reaction of most paper mill men to the suggestion to use a black material like carbon is that the pulp would be contaminated with unremovable black specks, but it has been demonstrated beyond a shadow of doubt that the special grade of carbon developed for pulp digester linings is neither eroded or corroded by pulp digester conditions. Therefore, where there is no decomposition of the carbon, there can be no damage to the pulp. In fact, it is now believed that carbon equipment in pulp and paper mills furnishes an exceptional safeguard against contamination of the pulp, which is the first consideration of all paper manufacturers.

Properties of Carbon

Nearly every engineer is familiar with long standing electrical uses of carbon as brushes, electrodes, illuminating carbons, etc., but it is only within the last five years that carbon has been applied for chemical purposes. Carbon is inert to all chemical reactions with the exception of those involving active oxidation, and it has therefore been found useful in the construction of equipment where highly corrosive conditions exist. Nascent oxygen, oxygen at temperatures above 625 deg. F., strong nitric and chromic acids are practically the only common reagents which attack carbon.

The physical properties of carbon are such as to make it satisfactory for a construction material. It has sufficient strength for all purposes combined with a resistance to thermal shock which fits it for use in construction work where rapid thermal changes occur. It is entirely satisfactory as a lining for reaction chambers and towers and for piping. Its physical properties are as outlined in Table 1.

TABLE 1
PHYSICAL PROPERTIES OF COKE BASE CARBON

Real density or specific gravity	2.00-2.10
Apparent density	1.53-1.64
Porosity	Approximately 25 per cent
Weight per cubic foot	Approximately 100 pounds
Tensile strength	Approximately 600 pounds per square inch
Crushing strength	6000-9000 pounds per square inch
Transverse strength	3200-6000 pounds per square inch
Thermal conductivity	0.00786 calories per cm. per deg. C.
Coefficient of thermal expansion	0.0000072 per deg. C.
Specific heat	0.200 g. cal./g. per deg. C. at 26 deg. to 282 deg. C.
Specific electrical resistance	.0042-.0017 per inch cube
Volatilization point	Approximately 6300 deg. F.
Ash	1.00-1.20 per cent
Start of oxidation	625 deg. F.

Carbon Linings for Pulp Digesters

The first application of carbon for lining sulphite and kraft pulp digesters was made in 1928. At that time the pulp producers who had hitherto objected to the use of a black lining material because of possible contamination, cooperated to the extent of installing carbon patches in digester linings. Six of these patches were installed as integral parts of ceramic linings, and after two years of service were found to be entirely successful. No chipping, spalling, erosion, or corrosion was encountered and the corners of the carbon bricks were still sharp. This was in marked contrast to the surrounding ceramic bricks, which showed progressive disintegration in proportion to their period of service. It was also noticeable on inspection that the surface of the carbon bricks was perfectly clean, while the ceramic bricks were covered with a calcareous crust about ¼ inch thick, which constantly flaked off into the pulp. In addition to these patches

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the TAPPI materials of construction committee

[1] Chemical engineer, National Carbon Company, Inc., Cleveland, Ohio.

samples of carbon have been subjected to accelerated corrosion tests by the Materials of Construction Committee of the Technical Association of the Pulp and Paper Industry. The reports of three of these tests showed negative corrosion results.

In the meantime a producer of kraft pulp who had never been able to hold a digester lining much more than a year became desperate and decided to install a complete carbon lining. The writer had the privilege of inspecting this lining in June, 1931, after about six months service, when it showed not the slightest trace of deterioration. The surface of the carbon had a thin coating of pulp fibers, and the operating superintendent reported that not a trace of contamination of the pulp by the carbon had taken place. An inspection after a year's service showed the carbon lining to be perfect condition. No signs of erosion, corrosion or spalling were evident and the corners of the bricks were as sharp as when first installed.

It was possible to make a direct comparison between this carbon lining and two different ceramic linings which were installed in kraft digesters at the same time in the same mill. One of these had spalled quite uniformly to a depth of about an inch, and it was possible to remove with the fingers plate-like sections as large as a person's hand. It is doubtful if this lining would last much over a year. The other lining was spalled irregularly to the depth of about ¾ inch over approximately 20 per cent of its surface, while the remainder showed less signs of attack.

These rather exhaustive tests under actual service conditions have satisfied a number of paper mill technicians that carbon linings can be applied with perfect safety to sulphite and kraft pulp digesters, and it is now believed by many that carbon is the ultimate answer to the demand for a long life or permanent lining. The only possible place were a weakness might develop is in the joints between the carbon bricks, though no serious defects have yet appeared during the 2½ years that carbon linings or patches have been in use. If the lining is inspected at intervals and any defects in the points promptly pointed up, a carbon lining might possibly serve nearly as long as the shell.

Up to the present time only sulphite and riveted kraft digesters have been lined, but recent studies of the corrosion of welded kraft digesters shells have indicated that this is serious enough to raise the question of lining welded shells, especially since a lining is now available which will successfully resist the peculiarly difficult conditions existing in kraft digesters. It has been demonstrated in one group of three kraft digesters over a period of five years that the localized corrosion of the shell amounts to about 1/32 inch per year. At this rate, it is conceivable that such a digester would be unsafe to operate after a moderate period of service, without removing and welding patches on the highly corroded portions.

So far, the same methods as those for erecting ceramic brick linings have been used for the installation of carbon linings, and it is satisfactory to follow such a procedure for the present. Later, after more experience with this material has been gained, it may be possible to reduce the thickness of the bricks and institute different jointing methods.

In one sulphite plant the usual backing of special portland cement grout was used, and the face bricks were pointed with litharge-glycerine cement, which has shown no tendency to disintegrate as the absence of chipping of the edges of the carbon bricks prevents the exposure of large surfaces of the cement to the action of the sulphite cooking process. The indications are that litharge-glycerine cement is more resistant to sulphite liquor than ceramic bricks, and that the cement is only chipped away with spalls from the bricks. As there is no destruction of the carbon bricks, there will be very little solvent action of the sulphite liquor on the cement. In another sulphite plant a special Swedish silicate of soda cement was used for joining the carbon and ceramic bricks, and the joints of the former are now perfectly intact after two years of service. In a third plant, it is understood that still a different type of cement was used with the carbon lining, and no defects have developed in the joints after a little over a year's exposure to sulphite cooking conditions. The composition of this cement is not known to the author.

In the kraft digester which was lined completely with carbon, a silicate cement of unknown composition was used with perfect success between the joints of the carbon bricks, so it is felt that there is a wide variety of cements which are entirely suitable for use with carbon. There is even available a carbonaceous cement which can be employed, if there are means at hand to heat the finished structure to 500-600 deg. F. for about 48 hours. This treatment carbonizes the cement and makes the entire lining of practically monolithic construction. In the erection of the carbon lining in the kraft digester mentioned here, two layers of carbon brick were installed and the usual backing layer of portland cement between the carbon and the steel shell was employed.

It is common practice to use bricks approximately 9 x 7 x 2½ inches with a slightly curved face for the lining of the cylindrical portion of a pulp digester, while various wedge and special shaped bricks are employed in the dome and conical bottom sections. It is possible to produce carbon in these shapes, but the expense of dies and molding equipment is a considerable item, and it has been demonstrated that perfect carbon linings can be installed by using straight sided 9 x 4½ x 2½ inches or 9 x 7 x 2½ inches brick, making whatever cuttings are necessary in the field. The complete carbon lining in a large kraft digester mentioned above was a very serviceable and smooth appearing job.

Other Applications

The success of carbon linings in pulp digesters is probably due to two main factors: its inertness to chemical attack by the cooking processes, and the fact that carbon does not spall or crack when subjected to sudden thermal changes and physical stresses. It has a low coefficient or thermal expansion and is more elastic than ceramic ware.

Though calcined carbon has a porosity of about 20 per cent, this is no disadvantage in a material for digester linings, as the pores quickly fill up with decomposed lignin and calcareous deposits.

Because of the lack of affinity of chemical reagents for carbon, there are a number of other suggested uses in the pulp and paper industry where highly corrosive conditions are present.

One of these which appears to be quite appropriate is the use of carbon beams 2 x 4 inches in section for the sills supporting the perforated floors of the blowpits. Wood sills corrode out within two or three years, but the carbon should last forever under these conditions. It has also been suggested to construct the whole blowpit itself of carbon beams, or line a wooden or steel shell with carbon bricks. This is perfectly possible from a chemical engineering standpoint, and the only thing to be worked out is the economics of the problem.

Vomit stacks are other similar structures which could be built of carbon, if the paper mill operators can be convinced that the long life of this type of construction would compensate for its increased cost. The life of yellow pine vomit stacks used at the present time is only about eight years, and the monthly maintenance cost per stack at one large paper mill is $43.00.

It is also conceivable that much carbon as beams and plates can be used in the construction of the towers employed in the production of sulphite liquor, where SO_2 gas is absorbed in solution circulating over blocks of lime stone.

Now that impervious carbon in the form of tubes and bricks is available, the construction of sulphite liquor storage tanks, bleach tanks, and stock chests becomes practicable. The storage tanks are usually about 24 feet diameter x 24 feet high. When made of yellow pine they last about eight years. Some of the wooden shells now in fair repair might be lined with carbon plates.

Wherever corrosion problems are encountered in the pulp and paper industry, carbon can be considered as a construction material

United States Patents On Papermaking

Fourth Quarter, 1931

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI.

NOTE—Printed copies of the patents listed below may be obtained at ten cents ($0.10) each from the Commissioner of Patents, Washington, D. C. Stamps and personal checks are not accepted. The execution of orders will be considerably expedited if coupons are used.

October 6, 1931

1,825,655. Method of manufacturing cellulose. Joaquin Julio de la Roza, Sr., Tuinucu, Cuba. Filed Oct. 16, 1928. 5 claims. (Cl. 92-11).

1,825,796. Safety paper. Samuel S. Himmell, New York, N. Y. Filed Sept. 18, 1930. 3 claims. (Cl. 283-8).

1,825,798. Stencil sheet. Shinjiro Horii, Kanda-Ku, Tokyo, Japan. Filed Sept. 6, 1930. 9 claims. (Cl. 41-38.6). The coating consists of esters of polysaccharides and blown camella oil.

1,825,834. Composition and process for producing and using it. Edward Thomas, New York, N. Y. Filed Jan. 17, 1924. 7 claims (Cl. 92-21). A shaped plastic mass from pulp and a petroleum product.

1,825,869. Process of producing felted materials containing bitumen. Charles L. Keller, assignor to The Richardson Company, Lockland, Ohio. Filed May 21, 1929. 4 claims. (Cl. 92-21).

1,825,877. Composition flooring and method of making the same. Emil C. Loetscher, Dubuque, Iowa. Filed June 7, 1930. 10 claims. (Cl. 154-49). A fibrous material is impregnated with bakelite.

1,825,928. Positioning means in paper cutting machines and the like. Karl Stegmann, assignor to Johne-Werk Grafische Maschinen-Aktiengesellschaft, Bautzen, Germany. Filed Aug. 7, 1930. 3 claims. (Cl. 164-59).

1,826,028. Process for the production of sulphite liquor. Max Georg Theodor Schroeder, Berlin, Germany. Filed Feb. 29, 1928. 4 claims. (Cl. 23-129).

1,826,041. Paper winding apparatus. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Sept. 14, 1928. 12 claims. (Cl. 242-66).

1,826,103. Automatic compensator for traveling felt in paper making machines. William J. Trempe, North Billerica, Mass. Filed July 14, 1930. 12 claims. (Cl. 92-49).

1,826,179. Removing printing ink from paper. Minnie E. Kinyon and Brice W. Kinyon, South Bend, Ind. Filed July 23, 1930. 7 claims. (Cl. 92-13). A solution of naptha soap in soft water is used.

1,826,224. Method of treating talloel. Willi Schultze, Halle-on-the-Saale, Germany. Filed Nov. 29, 1927. Renewed Aug. 6, 1931. 2 claims. (Cl. 202-52). The oil is distilled at a decomposing temperature in a high vacuum, giving liquid fatty acids.

1,826,557. Paper. Joseph A. Lowe, assignor to Falulah Paper Company, Fitchburg, Mass. Filed Feb. 1, 1929. 1 claim. (Cl. 154-46). Outer sheets of short fiber are applied to a long-fibered kraft paper.

October 13, 1931

1,826,706. Method of making sheet roofing. Isadore Davis, Marshalltown, Iowa. Filed July 12, 1929. 4 claims. (Cl. 154-40). The base is dipped in rubber and then in asphalt.

1,826,726. Paper coating composition. Donald B. Bradner, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed Aug. 30, 1928. 3 claims. (Cl. 91-68). A small amount of pine oil is used to reduce pin hole defects.

1,826,735. Paper making machine. Austin E. Cofrin, Green Bay, Wis. Filed Dec. 26, 1928. 7 claims. (Cl. 92-44). Scraper members for the wire.

1,826,753. Method and apparatus for making chemical solutions. Thomas Leonidas Dunbar, assignor to Chemipulp Process, Incorporated, Watertown, N. Y. Filed Feb. 5, 1929. 10 claims. (Cl. 23-132). Process for preparing calcium bisulphite liquor.

1,826,825. Preparation of cellulose fiber for conversion into derivatives. George A. Richter, Milton O. Schur and Royal H. Rasch, assignors to Brown Company, Berlin, N. H. Filed Oct. 27, 1927. 20 claims. (Cl. 260-146). Waterleaf paper strips of mercerized fiber.

1,826,857. Beater. Walter J. Zimmerman, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed Apr. 25, 1927. 16 claims. (Cl. 92-24).

1,827,026. Process for making roofing, saturated felts and the like. Arthur G. Leonard, Jr., Wilmington, Ill. Filed Jan. 28, 1928. 6 claims. (Cl. 92-40). The dried sheet is passed through the saturant free of aqueous moisture.

1,827,052. Log barker. Carl Busch Thorne, Hawkesbury, Ontario, Canada. Filed June 27, 1930. 3 claims. (Cl. 144-208).

1,827,080. Treating sulphite liquor spirit. Max Gade, assignor of one-half to Zellstofffabrik Waldhof, Mannheim-Waldhof, Germany. Filed Apr. 11, 1930. 4 claims. (Cl. 195-20).

1,827,177. Paper making machine. William R. Thomson, Westmount, Quebec, Canada. Filed Oct. 20, 1928. 13 claims. (Cl. 92-44). Suction device.

1,827,203. Cellulose-containing articles and method of producing such articles. John Shirley Little, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Feb. 11, 1928. 6 claims. (Cl. 92-54). Highly hydrated pulp is mixed with a filler until the water content is about 80% and then shaped.

1,827,228. Beater bar. Frank M. Gloyd, assignor to Simonds Worden White Company, Dayton, Ohio. Filed Feb. 10, 1931. 11 claims. (Cl. 92-22). The bar has a series of holes to prevent air being pocketed in spaces between adjacent bars.

1,827,263. Composition for flameproofing inflammable materials. Frank Louis Roman, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed May 21, 1927. 5 claims. (Cl. 134-78.6). Ammonium phosphate, gum arabic, glycerol and water.

1,827,279. Method and apparatus for refining pulp. George Holmes Carnahan, assignor to Rubber Surfacers, Inc., Wilmington, Del. Filed Dec. 9, 1929. 5 claims. (Cl. 92-20). Kollergang.

1,827,280. Method and apparatus for treating pulp. George Holmes Carnahan, assignor to Rubber Surfacers, Inc., Wilmington, Del. Filed Dec. 24, 1929. 11 claims. (Cl. 92-20). A stamping machine.

1,827,539. Making envelopes and machine therefor. Abraham Novick, Flushing, N. Y. Filed Sept. 1, 1927. Renewed Jan. 23, 1931. 42 claims. (Cl. 93-61).

1,827,589. Paper folding machine. Oscar Kleinschmit, assignor to Gebruder Brehmer, Maschinen-Fabrik, Leipzig-Plagwitz, Germany. Filed Mar. 6, 1930. 3 claims. (Cl. 270-68).

1,827,640. Coating table for coating machines. Lynn B. Case, assignor to John Waldron Company, New Brunswick, N. J. Filed Dec. 13, 1928. 1 claim. (Cl. 91-60).

1,827,641. Distributing brush for coating machines. Lynn B. Case, assignor to John Waldron Company, New Brunswick, N. J. Filed Dec. 13, 1928. 2 claims. (Cl. 91-37).

1,827,658. Method and apparatus for determining the result of treatment of material. Bjarne Johnsen, assignor to Hammermill Paper Company, Erie, Pa. Filed Aug. 7, 1929. 8 claims. (Cl. 92-7). An auxiliary chamber for a digester.

1,827,700. Waterproof paper and process of making same. Lester Kirschbraun, assignor to The Flintkote Company, Boston, Mass. Filed May 13, 1929. 5 claims. (Cl. 92-21).

1,827,701. Waterproof felted sheet. Lester Kirschbraun, assignor to The Flintkote Company, Boston, Mass. Filed May 6, 1930. 16 claims. (Cl. 92-21).

1,827,710. Process for treating fibrous materials. Carl Leyst-Kuchenmeister, Berlin-Schlachtensee, Germany. Filed June 10, 1929. 10 claims. (Cl. 92-6). The raw material is subjected to combined hydrodynamic and frictional heating treatment.

October 20, 1931

R18,233. Hard grainless fiber product and process of manufacture. William H. Mason, assignor to Masonite Corporation, Laurel, Miss., Original No. 1,789,825, dated Jan. 20, 1931. Application for reissue filed June 10, 1931. 11 claims. (Cl. 92-54).

1,827,802. Paper winding machine. Karl Sieg, assignor to Samuel M. Langston Co., a Corporation of New Jersey. Filed May 24, 1930. 8 claims. (Cl. 242-66).

1,827,857. Process for the purification of chemical wood pulp. John D. Rue, assignor to The Champion Fibre Company, Canton, N. C. Filed Feb. 21, 1929. 15 claims. (Cl. 8-2).

1,827,923. Manufacture of paper. Alexander J. Wildman and Homer H. Latimer, assignors to The Beckett Paper Company, Hamilton, Ohio. Filed May 31, 1929. 13 claims. (Cl. 92-40). Dyeing apparatus.

1,827,992. Typewriter backing sheet. Stuart H. Linderman, assignor to Underwood Elliott Fisher Company, New York, N. Y. Filed May 27, 1930. 3 claims. (Cl. 282-29). A sheet of paper is cemented to a thin pliable celluloid sheet.

1,828,028. Production of sheathing boards from redwood bark. Elton R. Darling, assignor to Pacific Lumber Company, Chicago, Ill. Filed June 19, 1929. 6 claims. (Cl. 92-14). The bark is leached with water and treated with dilute alkali.

1,828,029. Wall board, sheathing lumber and the like. Carl Marx and Elton R. Darling, assignor to Pacific Lumber Company, Chicago, Ill. Filed June 22, 1929. 6 claims. (Cl. 154-2).

1,828,210. Freeness tester. Frank M. Williams, Watertown, N. Y. Filed May 11, 1927. 10 claims. (Cl. 73-51).

1,828,222. Composition roofing shingle. Oscar B. Clow, Tacoma, Wash. Filed Oct. 21, 1930. 4 claims. (Cl. 108-7.5).

1,828,243. Pulping farm wastes. Elton Richmond Darling, assignor to Cornstalk Products Company, Inc., Danville, Ill. Filed Dec. 16, 1929. 4 claims. (Cl. 92-13). Alkaline process.

1,828,279. Apparatus and method for the recovery of chemicals from pulp magma. Henry Lutcher Brown, Houston, Tex. Filed July 24, 1930. 17 claims. (Cl. 92-2). Foam is separated from the liquid and the chemicals separately recovered.

1,828,338. Fiber bleaching. John Neumann, Chicago, Ill. Filed Mar. 29, 1929. 3 claims. (Cl. 8-2). Kraft pulp is bleached with an agent containing oxalic acid and sodium chloride.

1,828,351. Insulating metal lath. David B. Arnold, assignor to Eastern Expanded Metal Company, Cambridge, Mass. Filed Aug. 22, 1928. 4 claims. (Cl. 92-40).

1,828,511. Method of producing cellulose. Bror Natanael Segerfelt, Bohmisch Krumau, Czechoslovakia. Filed Apr. 21, 1928. 4 claims. (Cl. 92-9). Reuse of waste liquor.

1,828,690. Method of utilizing magnesian rock in the preparation of calcium-magnesium bisulphite liquor in towers. Daniel Wallace Stewart, Ottawa, Ontario, Canada. Filed May 26, 1928. 7 claims. (Cl. 23-132). The rock is calcined and treated with sulphur dioxide.

October 27, 1931

1,828,766. Production of stencil sheets for use in duplicating. Armand de Waele, assignor to D. Gestetner, Limited, London, England. Filed Nov. 22, 1928. 11 claims. (Cl. 41-38.6). A cellulose ester and a hydroxy fatty acid of the ricinoleic series are used.

1,828,848. Production of chemical wood pulps. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Mar. 9, 1929. Renewed Mar. 27, 1931. 6 claims. (Cl. 92-9). Combination caustic soda and sodium sulphide cook.

1,828,888. Paper winding apparaus. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Apr. 26, 1926. 29 claims. (Cl. 242-66).

1,829,075. Board cutting machine. Nicholas J. Vogel and Floyd R. Quick, assignors to United States Gypsum Company, Chicago, Ill. Filed Apr. 6, 1929. 4 claims. (Cl. 164-61).

1,829,110. Purification of cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed May 28, 1930. 6 claims. (Cl. 92-9). The fiber is treated with a cuprammonium solution to dissolve the non-alpha cellulose components.

1,829,157. Composite sheet material. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Sept. 29, 1928. 7 claims. (Cl. 154-46).

1,829,187. Method of making colored composition slabs. Georges Piessevaux, assignor to Etermit, Inc., St. Louis, Mo. Filed Nov. 14, 1929. 7 claims. (Cl. 92-41).

1,829,250. Nonreadable carbon paper. Crawford J. Walker, assignor to The Protectu Corporation, Indianapolis, Ind. Filed June 23, 1930. 7 claims. (Cl. 282-28).

1,829,378. Treatment of cellulose materials. Andrie Thiriet, assignor to Papeteries Navarre, Lyon, France. Filed Mar. 17, 1931. 28 claims. (Cl. 92-13). The product is treated with alkali liquors free from alkaline earth salts.

1,829,544. Separator. Frederick Schilling, Philadelphia, Pa., and Charles Howard Kircoaf, West Collingswood, N. J. Filed July 1, 1929. 9 claims. (Cl. 92-28). Separator for felt stock.

1,829,563. Conveying device for paper pulp. Richard T. Lang, assignor to American Voith Contact Company, Incorporated, New York, N. Y. Filed Feb. 4, 1927. 2 claims. (Cl. 92-20). Stock transporting screw.

1,829,585. Method of preparing impregnated paper products. Camille Dreyfus and George W. Miles, assignors to Celanese Corporation of America, New York, N. Y. Filed Nov. 29, 1927. 13 claims. (Cl. 92-21). A cellulose derivative in fibrous form is added to the paper stock.

1,829,630. Paper making roll and process of covering it. Archer Le Roy Bolton, assignor to John W. Bolton and Sons, Inc., Lawrence, Mass. Filed Mar. 31, 1927. 12 claims. (Cl. 92-27). Jordan engine plugs and assembly.

1,829,642. Paper packing spool. Clarence H. Forney, assignor to Sonoco Products Company,

Hartsville, S. C. Filed Mar. 28, 1930. 2 claims. (Cl. 242-119).

1,829,643. Paper packing spool. Clarence H. Forney, assignor to Sonoco Products Company, Hartsville, S. C. Filed Mar. 28, 1930. 4 claims. (Cl. 242-119).

1,829,660. Machine for manufacturing multiple-course papers, cardboards and the like. Gumal Knopp, Berlin-Wilmersdorf, Germany. Filed Oct. 10, 1929. 2 claims. (Cl. 92-39).

NOVEMBER 3, 1931

1,829,750. Stencil sheet. Shinjiro Horii, Kanda-Ku, Tokyo, Japan. Filed Aug. 1, 1930. 6 claims. (Cl. 41-38.6).

1,829,763. Cellulosic material. Arlie W. Schorger, assignor to C. F. Burgess Laboratories, Inc., Madison, Wis. Filed Feb. 21, 1930. 4 claims. (Cl. 92-20). A mixture of fibrous and gelatinized cellulose is dehydrated in an organic liquid.

1,829,802. Machine and method for making wall board. Max Kliefoth, assignor to C. F. Burgess Laboratories, Inc., Madison, Wis. Filed Dec. 22, 1927. 23 claims. (Cl. 154-1).

1,829,852. Manufacture of cellulose from straw. Elton R. Darling, assignor to Cornstalk Products Company, Inc., New York, N. Y. Filed Dec. 13, 1928. 5 claims. (Cl. 92-9). Two per cent of nitric acid is used.

1,829,877. Method of waterproofing textile materials. Christian M. E. Schroeder, Rutherford, N. J. Filed May 23, 1929. 14 claims. (Cl. 91-70). A metallic hydrate and fatty acid are used.

1,829,886. Method and apparatus for making roofing materials. Charles E. Yates and Harry C. Macan, assignors to Anaconda Sales Company, New York, N. Y. Filed Oct. 26, 1929. 24 claims. (Cl. 154-36).

1,830,131. Method of producing puffed pulp. Joseph E. Plumstead, assignor to The Jessup and Moore Paper Co., Philadelphia, Pa. Filed May 9, 1929. 20 claims. (Cl. 92-13).

1,830,287. Method of drying paper in the form of a continuous web. Erik Alexander Oehlin, Hyltebruk, Sweden. Filed Feb. 23, 1928. 2 claims. (Cl. 34-24).

1,830,315. Monosulphite wood treating process and resulting fiber and paper. Viggo Drewsen, assignor to Bradley-McKeefe Corporation, New York, N. Y. Filed Jan. 29, 1925. 16 claims. (Cl. 92-11).

1,830,421. Manufacture of pulp and paper from resinous woods. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed May 8, 1924. 36 claims. (Cl. 92-11). The wood is impregnated with a normal alkali sulphite.

1,830,461. Production of pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed June 28, 1921. 20 claims. (Cl. 92-11). Resinous wood is cooked at 110 to 140 pounds pressure with normal sodium sulphite.

1,830,607. Mineral fiber paper and process of making the same. Arthur L. Kennedy, assignor to Plastic, Inc. Filed June 22, 1927. 10 claims. (Cl. 92-21). A kelp product.

1,830,741. Apparatus for saturating sheet material. David Low, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Aug. 3, 1928. 11 claims. (Cl. 91-18).

NOVEMBER 10, 1931

1,830,897. Device for indicating cutting marks on paper. Howard Brown, assignor to Southworth Company, Mittineague, Mass. Filed May 15, 1930. 5 claims. (Cl. 92-48). Watermarking roll.

1,830,980. Stencil sheet. Kenneth W. Carr, assignor to Ditto, Incorporated, Chicago, Ill. Filed Dec. 14, 1928. 41 claims. (Cl. 41-38.6). A vinyl ester is used.

1,831,004. Beater roll adjuster and indicator. Bertram C. Port Huron, Mich. Filed Jan. 27, 1931. 11 claims. (Cl. 92-24).

1,831,018. Machine for making articles from pulpous material. John Shirley Little, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Dec. 4, 1928. 2 claims. (Cl. 92-43).

1,831,032. Production of refined wood pulp. George A. Richter, assignor to Bown Company, Berlin, N. H. Filed Nov. 30, 1929. 4 claims. (Cl. 92-13). Wood is cooked in water at 300-400 deg. F. and then in an alkaline liquor.

1,831,050. Body, hollow and solid made of paper-pulp, wood-pulp or the like with metal reinforcing. Otto von Rottenburg, Berlin-Dahlem, Germany. Filed Sept. 11, 1929. 1 claim. (Cl. 92-55).

1,831,058. Building board and process of making same. Harry A. Cumper, Chicago, Ill., assignor of one-half to Willard J. Mason, Greenwich, Conn. Filed Jan. 30, 1928. 7 claims. (Cl. 154-2). Laminated fibrous board.

1,831,062. Tube making machine. Louis T. Frederick, assignor to Continental Diamond Fibre Company, Newark, Del. Filed Mar. 11, 1927. 15 claims. (Cl. 93-81).

1,831,063. Method of making moldable material. Louis T. Frederick, assignor to Continental Diamond Fibre Company, Newark, Del. Filed Aug. 13, 1927. 3 claims. (Cl. 154-2).

1,831,064. Machine for making composite material. Louis T. Frederick, assignor to Continental Diamond Fibre Company, Newark, Del. Filed Mar. 17, 1928. 8 claims. (Cl. 154-1).

1,831,065. Apparatus for making composite products. Louis T. Frederick, assignor to Continental Diamond Fibre Company, Newark, Del. Filed June 13, 1928. 2 claims. (Cl. 154-1).

1,831,197. Low viscosity cellulose fiber and process of making. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Jan. 20, 1928. 25 claims. (Cl. 260-10). The fiber is depolymerized in alkali below mercerizing strength and oxygen-containing gas.

1,831,206. Digester system. Walter H. Swanson and Lloyd Lang, assignors to Paper Patents Company, Neenah, Wis. Filed Mar. 6, 1931. 15 claims. (Cl. 92-7).

1,831,334. Roll suction device. Max Wenzel, Muldenstein, near Bitterfeld, Germany. Filed July 7, 1928. 6 claims. (Cl. 92-52).

1,831,403. Method of reenforcing porous paper. Edgar F. Woodward, assignor to Lewis C. Van Riper, Brooklyn, N. Y. Filed May 2, 1930. 2 claims. (Cl. 154-2). Net-like fabric is used for reenforcing.

1,831,435. Method for the preparation of alpha cellulose pulp. Charles A. Blodgett and Hugo H. Hanson, assignor to Eastern Manufacturing Company, South Brewer, Me. Filed Feb. 12, 1926. 13 claims. (Cl. 92-11). Combined acid-alkaline process.

1,831,436. Method for the preparation of strong, bleached sulphate pulp. Charles A. Blodgett and Hugo H. Hanson, assignors to Eastern Manufacturing Company, South Brewer, Me. Filed June 3, 1926. 6 claims. (Cl. 92-9). Combined alkaline-alkali sulphite process.

1,831,537. Paper shell for explosive. John F. McCune, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del. Filed Sept. 14, 1928. 2 claims. (Cl. 102-6).

1,831,599. Making fiber board by continuous filter process. Erwin H. Hussey, Minneapolis, Minn. Filed Feb. 19, 1927. 17 claims. (Cl. 92-42).

1,831,630. Method of saturating double width felt. Frank Bradford Manker, assignor to The Barrett Company, New York, N. Y. Filed Jan. 5, 1929. 2 claims. (Cl. 91-70).

1,831,642. Process and apparatus for pulping. George Stanford Witham, Jr., Hudson Falls, N. Y. Filed Dec. 14, 1927. 9 claims. (Cl. 92-20). Pulping drum.

1,831,647. Process of preparing alkali cellulose. Harry P. Bassett, Cynthiana, Ky. Filed Apr. 13, 1928. Renewed Apr. 2, 1931. 5 claims. (Cl. 260-10).

1,831,740. Production of fibers from cocoanuts. Egon Elod and Ludwig Thomas, Karlsruhe, Germany. Filed Jan. 9, 1929. 5 claims. (Cl. 92-4).

1,831,748. Arrangement for the circulation of digesting liquor in wood pulp digesters. Einar Morterud, Torderod, near Moss, Norway. Filed Nov. 24, 1930. 2 claims. (Cl. 99-7).

1,831,761. Method of producing packing for the impression cylinder of printing machines. Carl Winkler, Bern, Switzerland. Filed May 27, 1930. 1 claim. (Cl. 92-21). Paper pulp, cork powder and rubber are formed into a sheet.

1,831,779. Method and apparatus for reclaiming waste roofing material. Chester R. MacDonald, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Nov. 5, 1925. Renewed Aug. 29, 1929. 32 claims. (Cl. 18-12).

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1,831,928. Method for the elimination of foam in paper manufacture and the product therefor. Harold R. Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed June 29, 1927. 36 claims. (Cl. 92-21). Paper containing acid-soluble filler is treated with starch.

1,831,940. Method for preparing fibers. John A. Wiener and John B. Harmon, Oswego, N. Y. Filed May 12, 1930. 1 claim. (Cl. 92-20). Method for wall board.

1,831,978. Fiber drier. Bertrand S. Summers, Evanston, Ill. Filed May 29, 1929. 4 claims. (Cl. 34-12).

1,832,367. Process and apparatus for preconditioning cooking solutions. Thomas L. Dunbar, Watertown, N. Y. Filed May 17, 1930. 19 claims. (Cl. 92-2).

1,832,375. Process for the production of cellulose and hydro-carbons from sugar cane sprouts and refuse and burnt and frozen cane. Erich Jose Franck, Tucuman, Argentina. Filed Jan. 8, 1929. 4 claims. (Cl. 92-9).

1,832,481. Box making machine. Louis H. Gebhart, assignor to The Gebhart Folding Box Company, Dayton, Ohio. Filed Mar. 10, 1930. 31 claims. (Cl. 93-58).

NOVEMBER 24, 1931

1,832,844. Paper making machine and process. Austin E. Cofrin, Green Bay, Wis. Filed Apr. 17, 1928. 8 claims. (Cl. 92-44). Suction box.

1,832,882. Apparatus and method for operating on pulp streams. Wilhelm Thaler, assignor to American Voith Contact Company, Incorporated, New York, N. Y. Filed Jan. 9, 1930. 9 claims. (Cl. 92-24). Beating apparatus.

1,832,942. Former for combination fiber paper twine. Henry S. Mears, assignor to International Harvester Company, Chicago, Ill. Filed Nov. 29, 1929. 6 claims. (Cl. 117-50).

1,832,973. Gearless pivoted suction roll. Hiland R. Farnsworth, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Mar. 15, 1928. 4 claims. (Cl. 92-53).

1,832,974. Suction roll. Hiland R. Farnsworth, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed July 30, 1928. 5 claims. (Cl. 92-53).

1,832,978. Cellulose sheet. Maring Gentile, Chicago, Ill., assignor to Samuel F. Weis, Chicago, Ill. Filed Apr. 22, 1929. 1 claim. (Cl. 91-68). Grease-proof product.

1,832,987. Bituminous emulsions and method of producing same. Lester Kirschbraun, assignor to The Flintkote Company, Boston, Mass. Filed July 24, 1929. 7 claims. (Cl. 134-1).

1,833,029. Treatment of animal fibers. Alfred MacKay, assignor to American Salpa Corporation, New York, N. Y. Filed July 5, 1929. 9 claims. (Cl. 92-21). Cellulose waste liquors are added to a slurry of animal fibers.

1,833,058. Beating engine for paper pulp and the like. Wilhelm Thaler, assignor to American Voith Contact Co., Inc., New York, N. Y. Filed Feb. 7, 1930. 4 claims. (Cl. 92-24).

1,833,060. Embossing wall board. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed Feb. 23, 1928. 5 claims. (Cl. 154-2).

1,833,151. Resilient flexible sheet and method of making the same. Willis A. Boughton, assignor to Beckwith Manufacturing Company, Boston, Mass. Filed June 1, 1925. 3 claims. (Cl. 91-68).

1,833,207. Sanitary paper container or receptacle. Frank G. Culp, Eagle Rock, Calif., assignor of one-half to Edith A. Root, Los Angeles, Calif. Filed Nov. 26, 1929. 1 claim. (Cl. 229-5.6).

1,833,313. Treatment of residual liquors. Linn Bradley and Edward P. McKeefe, assignor to Bradley-McKeefe Corporation, New York, N. Y. Filed Jan. 14, 1924. 55 claims. (Cl. 92-11). Evaporation of black liquors.

1,833,350. Paper making machine. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed June 13, 1929. 29 claims. (Cl. 92-52). Suction device.

1,833,351. Paper making machine. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed July 15, 1929. 33 claims. (Cl. 92-44). Suction device.

1,833,377. Paper cup machine. Charles F. Smith, assignor to Lily-Tulip Cup Corporation, New York, N. Y. Filed Apr. 6, 1927. 26 claims. (Cl. 93-39).

1,833,378. Machine for making spirally-wound tubes. Charles F. Smith, assignor to Lily-Tulip Cup Corporation, New York, N. Y. Filed Dec. 22, 1928. 7 claims. (Cl. 91-55).

1,833,410. Machine for forming paper, cardboard or like blanks. John Walker Chalmers, London, England. Filed Mar. 18, 1929. 2 claims. (Cl. 164-19).

1,833,493. Preservation of vegetable material in storage. Treadway B. Munroe and Elbert C. Lathrop, assignors to The Celotex Company, Chicago, Ill. Filed Dec. 26, 1928. 12 claims. (Cl. 92-5). Preservation of bagasse fibers.

1,833,557. Means and method for making paper containers or the like. Samuel Bergstein, Middletown, Ohio. Filed Apr. 15, 1929. 4 claims. (Cl. 93-36).

1,833,850. Slitting and winding apparatus. Alfred James Jones and Frederick Nicholas, assignors to E. S. and A. Robinson, Limited, Bristol, England. Filed June 28, 1928. 3 claims. (Cl. 164-65).

1,833,651. Method for roofing manufacture. Emile R. Low, assignor to Certain-teed Products Corporation, Buffalo, N. Y. Filed Nov. 19, 1927. 3 claims. (Cl. 91-68).

1,833,804. Manufacture of paper making material. Ko Watanabe, Higashi-Ku, Nagoya, Japan. Filed Nov. 1, 1929. 1 claim. (Cl. 92-9). Deinking paper with emulsion of turpentine oil and soap solution.

1,833,805. Manufacture of paper making material. Ko Watanabe, Higashi-Ku, Nagoya, Japan. Filed Nov. 1, 1929. 1 claim. (Cl. 92-9). Deinking paper.

1,833,848. Bottom sieve for wood pulp digesters. Einar Morterud, Torderod, near Moss, Norway. Filed Dec. 26, 1930. 1 claim. (Cl. 92-7).

1,833,852. Manufacture of paper making material. Naoshige Osawa, assignor to Ko Watanabe, Nagoya, Japan. Filed Nov. 1, 1929. 1 claim. (Cl. 92-9). Deinking paper, using camphor oil and soap solution.

DECEMBER 1, 1931

R18,268. Process of treating waste sulphite liquor. Guy C. Howard, assignor to Guy C. Howard Company, Seattle, Wash. Original No. 1,699,845, dated Jan. 22, 1929. Filed Mar. 11, 1930. 28 claims. (Cl. 252-7).

1,833,910. Method of and apparatus for paper making. Howard Parker, assignor to Brown Company, Berlin, N. H. Filed Mar. 29, 1930. 10 claims. (Cl. 92-39). Method of supplying pulp to stock mold.

1,833,975. Cyclic process of fiber liberation. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Sept. 6, 1923. 17 claims. (Cl. 92-11). Combination of soluble sulphite and sulphate.

1,833,976. Processing of pulp and product of same. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed June 29, 1927. 19 claims. (Cl. 92-13). Chemical wood pulp in raw condition is digested with a saponaceous reagent.

1,834,004. Method of producing shingle strips. Frederick C. Overbury and Otto A. Heppes, assignors to The Patent and Licensing Corporation, Boston, Mass. Filed Nov. 28, 1925. 2 claims. (Cl. 164-17).

1,834,298. Pulp screen. Harold D. Wells, Glens Falls, N. Y. Filed Dec. 7, 1929. 11 claims. (Cl. 92-34).

1,834,309. Machine for making insulating bats. Francis W. Harney, assignor to The Upson Company, Lockport, N. Y. Filed Feb. 8, 1930. 3 claims. (Cl. 19-156).

1,834,323. Conveyor. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed Aug. 31, 1928. 7 claims. (Cl. 198-84).

1,834,324. Sheet and board conveyor. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed Sept. 6, 1928. 5 claims. (Cl. 198-84).

1,834,343. Paper maker's drier felt. Thomas Hindle, Haslingden, England. Filed Aug. 24, 1929. 1 claim. (Cl. 139-412).

1,834,363. Manufacture of paper. John Hill Watson and Hugh Edward Anderson, Linwood, Scotland. Filed Aug. 20, 1930. 1 claim. (Cl. 92-40). A layer of rubber is pressed between 2 layers of paper.

1,834,470. Suction roll. William H. Millspaugh, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Sept. 28, 1926. 13 claims. (Cl. 92-53). A suction-roll shell having its perforations positioned on 2 continuous spirals.

1,834,564. Apparatus for feeding blanks to envelope making or like machines. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Sept. 22, 1930. 14 claims. (Cl. 270-68).

1,834,565. Blank feeding and folding apparatus. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Sept. 22, 1930. 6 claims. (Cl. 270-68).

1,834,566. Apparatus for removing and simultaneously folding sheets from a stack. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Jan. 22, 1931. 11 claims. (Cl. 270-68).

1,834,567. Method and apparatus for drying the closure flap gumming on envelopes and the like. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Jan. 22, 1931. 13 claims. (Cl. 93-74).

1,834,568. Apparatus for removing sheets from a stack. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Jan. 22, 1931. 16 claims. (Cl. 270-68).

1,834,648. Corrugating machine. Arthur B. Saunders, assignor to Johns-Manville Corporation, New York, N. Y. Filed Mar. 3, 1930. 8 claims. (Cl. 92-39).

1,834,664. Roller folding machine for the manufacture of envelopes. Alfred Winkler and Max Dünnebier, Neuwied, Germany. Filed Aug. 23, 1930. 14 claims. (Cl. 93-63).

1,834,665. Web manipulating mechanism for paper folding machines. Henry A. Wise Wood, assignor to Wood Newspaper Machinery Corporation, New York, N. Y. Filed Feb. 24, 1928. Renewed May 5, 1931. 28 claims. (Cl. 270-6).

1,834,676. Process of producing pulp and treatment of residual liquors. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed May 9, 1928. 19 claims. (Cl. 92-9).

1,834,802. Laminated waterproof lining for containers. Robert E. Pierce, assignor to Bemis Bro. Bag Co., St. Louis, Mo. Filed Apr. 13, 1928. 4 claims. (Cl. 150-1).

1,834,844. Process for sizing paper and product therefrom. Edward J. Johnstone, Lockport, N. Y. Filed Jan. 27, 1930. 3 claims. (Cl. 92-21). Anhydrous finely comminuted rosin is size is added to a water suspension at room temperature.

1,834,845. Treatment of waste liquors. Rupert Sydney Jones and Stanley Pearson, assignors to Courtaulds Limited, London, England. Filed July 15, 1930. 2 claims. (Cl. 2.10-23). Waste liquors containing alkaline sulphide.

1,834,852. Paper making machinery. Herman L. Kutter, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed Aug. 17, 1929. 8 claims. (Cl. 92-49). A bottom roll.

1,834,895. Laminated wood product. Jacob Brossman, assignor to General Electric Company, Schenectady, N. Y. Filed Apr. 24, 1931. 3 claims. (Cl. 144-309).

1,834,903. Manufacture of paper. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Feb. 5, 1930. 16 claims. (Cl. 92-21). Use of alkaline filler.

December 8, 1931

1,834,950. Method of and apparatus for producing roofing. Fred Jaeger, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Feb. 16, 1929. 11 claims. (Cl. 91-68).

1,834,954. Method of and apparatus for making strip shingles. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Sept. 9, 1926. 2 claims. (Cl. 91-68).

1,834,998. Method of and apparatus for manufacturing roofing material. Mathew R. Becker, assignor to Becker Roofing Company, Chicago, Ill. Filed June 17, 1928. 20 claims. (Cl. 91-67.9).

1,835,401. Plunger for box-making machines. Frank M. Joslin, Amsterdam, N. Y. Filed Feb. 14, 1930. 16 claims. (Cl. 93-51).

1,835,766. Paper or other fibrous product. Carleton Ellis, Montclair, N. J. Filed Dec. 8, 1926. Renewed Feb. 5, 1931. 21 claims. (Cl. 154-50). Multi-ply paper carrying sulphur resinated with a sulphurized homologue of phenol.

1,835,964. Refining engine. John D. Haskell, Fulton, N. Y. Filed Dec. 2, 1930. 13 claims. (Cl. 92-26).

December 15, 1931

R18,286. Plaster board. Carl Absmeier, assignor to United States Gypsum Company, Chicago, Ill. Original application No. 1,657,333, dated Jan. 24, 1928. Filed Mar. 2, 1931. 6 claims. (Cl. 154-45.9).

1,836,001. Apparatus for making paper containers. Edward C. Angell, New York, N. Y. Filed Feb. 24, 1926. Renewed July 19, 1930. 17 claims. (Cl. 93-55).

1,836,021. Water dispersion of polymerized styrol. Product made therefrom. Willis A. Gibbons, assignor to The Naugatuck Chemical Company, Naugatuck, Conn. Filed Nov. 3, 1930. 19 claims. (Cl. 92-21). The fiber is impregnated with a styrol compound.

1,836,145. Roller machine for the manufacture of envelopes. Alfred Winkler and Max Dünnebier, Neuweid, Germany. Filed Mar. 17, 1931. 4 claims. (Cl. 93-61).

1,836,226. Machine for making boxes. Edward Craig, assignor to Saranac Machine Company, Benton Harbor, Mich. Filed May 22, 1928. 25 claims. (Cl. 93-42).

1,836,243. Filter and press roll therefor. Anton J. Haug, Nashua, N. H. Filed Dec. 20, 1928. 11 claims. (Cl. 92-49).

1,836,346. Coated and moldable material. Edward Thomas, New York, N. Y. Filed June 16, 1928. 8 claims. (Cl. 92-21). Asbestos is coated with less than 15 percent of oil.

1,836,455. Method of making paper. Arthus C. Dreshfield, assignor to Paper Maker's Chemical Corporation, Kalamazoo, Mich. Filed July 25, 1930. 8 claims. (Cl. 92-21). A method of dry sizing.

1,836,467. Apparatus for making paper. John Allen Heany, assignor to World Bestos Corporation, Paterson, N. J. Filed Sept. 12, 1927. 4 claims. (Cl. 92-24). Beater.

1,836,621. Method of and arrangement for examining the local strength of fabrics, paper, rubber and the like. Friederich Schubert, Vienna, Austria. Filed Nov. 19, 1928. 6 claims. (Cl. 265-17).

1,836,827. Cooker. Max F. Thau, Los Angeles, Calif. Filed Oct. 27, 1930. 3 claims. (Cl. 53-6).

1,836,834. Method of making paper. William P. Argy, Turners Falls, Mass. Filed Mar. 7, 1930. 2 claims. (Cl. 92-38). A pre-heating roll for the paper web.

1,836,837. Method of making paper boxes. Mark B. Clapp, Randolph, Mass. Filed June 20, 1929. 4 claims. (Cl. 93-43).

1,836,862. Process of removing liquor from wood pulp digesters. Einar Morterud, Torderod, near Moss, Norway. Filed Aug. 14, 1930. 1 claim. (Cl. 92-7).

1,836,909. Method of manufacturing boxes. Paul Wilhelm Dietmann, Jonkoping, Sweden. Filed Oct. 14, 1930 8 claims. (Cl. 93-45).

1,836,993. Method of making paper boxes and form therefor. Melvin H. Sidebotham, assignor to Specialty Automatic Machine Company, Chelsea, Mass. Filed Dec. 15, 1930. 6 claims. (Cl. 93-49).

1,837,084. Marking roll. Jean K. Vanata, assignor to Nekoosa-Edwards Paper Company, Port Edwards, Wis. Filed Nov. 14, 1930. 2 claims. (Cl. 92-48).

December 22, 1931

1,837,228. Method of obtaining spinning fiber from unretted plant stalks and article obtained thereby. George A. Lowry, assignor to Fibre Process and Equipment Corporation, Wilmington, Del. Filed Nov. 3, 1928. 20 claims. (Cl. 92-10).

1,837,261. Fiber product. August Gerard and Maurice Weisman, assignors to Cotton-Wood Products, Inc., Reading, Mass. Filed May 9, 1928. 7 claims. (Cl. 154-54). Cushioned fiber product.

1,837,309. Method of and apparatus for producing paper pulp. Robert B. Wolf, assignor to Ligno-Cellulose Corporation, New York, N. Y. Filed June 5, 1930. 20 claims. (Cl. 92-11). Method of cooking sulphite pulp.

1,837,381. Plaster board. John J. Turner, assignor to National Gypsum Company, Buffalo, N. Y. Filed June 30, 1928. 5 claims. (Cl. 154-1).

1,837,433. Manufacture of paper twine. Alex Hayner, assignor to United Shoe Machinery Corporation, Paterson, N. J. Filed Oct. 24, 1925. 13 claims. (Cl. 117-53).

1,837,562. Cylinder for paper coating machines and the like. Charles W. Mayer, Rochester, N. Y. Filed Mar. 16, 1929. 8 claims. (Cl. 257-95).

1,837,727. Envelope machine. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Oct. 5, 1928. 7 claims. (Cl. 93-63).

1,837,769. Roll for beating engines and the like. Frank G. Feeley, assignor to E. D. Jones and Co., Pittsfield, Mass. Filed Mar. 21, 1930. 8 claims. (Cl. 92-22).

1,837,769. Envelope lining machine. Joseph N. Fountain, assignor to Old Colony Envelope Company, Westfield, Mass. Filed Feb. 6, 1928. 3 claims. (Cl. 93-62).

1,837,803. Electrical sectional drive for paper machines. Milton T. Weston, New York, N. Y. Filed Mar. 9, 1926. 4 claims. (Cl. 172-293).

1,837,806. Pulp beater. William August Bessmer, assignor to Hammermill Paper Company, Erie, Pa. Filed Oct. 21, 1930. 8 claims. (Cl. 92-24).

1,837,841. Machine for making composite boards. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed Mar. 17, 1931. 22 claims. (Cl. 154-32).

1,837,985. Pulp digester with forced circulation. Einar Morterud, Torderod, near Moss, Norway. Filed Mar. 19, 1930. 1 claim. (Cl. 92-7).

1,838,074. Container and material therefor. Mortimer T. Harvey, assignor to The Harvel Corporation, Newark, N. J. Filed Oct. 21, 1927. 21 claims. (Cl. 91-68). Modified cashew nut shell liquid is the base of the coating.

December 29, 1931

1,838,109. Production of furfural. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed June 6, 1930. 3 claims. (Cl. 92-2). Waste sulphite liquors are neutralized, concentrated, acidified and distilled.

1,838,237. Composite wall tile. Robert P. Stranahan, assignor to Reynolds Metals Company, Louisville, Ky. Filed Dec. 23, 1929. 1 claim. (Cl. 154-45.9).

1,838,326. Refined wood pulp of low pentosan content. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Mar. 14, 1930. 2 claims. (Cl. 92-3).

1,838,358. Process for making coated paper. Donald B. Bradner, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed Feb. 11, 1929. 4 claims. (Cl. 91-68).

1,838,367. Preparation of high alpha cellulosic pulp. Elton R. Darling, assignor to Cornstalk Products Company, Inc., Danville, Ill. Filed Mar. 31, 1930. 4 claims. (Cl. 92-7).

1,838,480. Device for continuously drying paper webs provided with areas of varnish. Paul Gangler, assignor to the Firm Fr. Hesser Maschinenfabrik-Aktiengesellschalt, Stuttgart-Cannstatt, Germany. Filed Mar. 8, 1929. 2 claims. (Cl. 34-29).

1,838,563. Automatic stock regulator for paper machines. Fred H. Maxry, assignor of one half to Saxon and Warren, Camden, Ark. Filed Jan. 31, 1930. 13 claims. (Cl. 92-46).

1,838,565. Machine for grinding and refining paint, cellulose, chocolate, chemicals and such like materials. John McIntyre, Portobello, Scotland. Filed Apr. 20, 1931. 8 claims. (Cl. 83-11).

1,838,603. Paper making machine. George S Witham, St., Hudson Falls, N. Y. Filed July 11 1929. 28 claims. (Cl. 92-38). Means for feeding and cutting a paper web.

1,838,612. Method and means of controlling webs. James A. Cameron, assignor to Cameron Machine Company, Brooklyn, N. Y. Filed Apr. 30, 1931. 4 claims. (Cl. 164-65).

1,838,614. Slowness tester for paper stock. George F. French, assignor to Riegel Paper Corporation, Riegelsville, N. J. Filed May 19, 1931. 16 claims. (Cl. 92-38)

1,838,704. Bag making machine. Adolf Potdevin, assignor to Potdevin Machine Company, New York, N. Y. Filed Nov. 2, 1928. 15 claims. (Cl. 93-18)

1,838,710. Consistency regulator. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Oct. 1, 1928. 33 claims. (Cl. 92-46).

1,838,761. Integral felted fibrous structure. Richard E. Hall, assignor to Arvey-Ware Corporation, a Corporation of Delaware. Filed Apr. 9, 1930. 4 claims. (Cl. 92-54).

1,838,875. Beater roll. Daniel H. Shartle, Middletown, Ohio. Filed Nov. 19, 1928. 11 claims. (Cl. 92-22).

1,838,904. Pulp molding machine. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Mar. 14, 1928. 14 claims. (Cl. 92-56).

1,838,969. Paper manufacture. Edwin Sutermeister and Joseph A. Warren, assignor to S. D. Warren Company, Boston, Mass. Filed Apr. 7, 1928. 6 claims. (Cl. 92-21).

1,838,988. Suction box for pulp and paper machines. John Arthur Dickinson, Smooth Rock Falls, Ontario, Canada. Filed May 25, 1931. 20 claims. (Cl. 92-51).

1,839,047. Core structure for paper rolls. Philip D. Parsons, assignor to Scott Paper Company, Chester, Pa. Filed Oct. 1, 1930. 2 claims. (Cl. 242-68).

1,839,135. Process of fireproofing cellulosic material and composition for use therein. Fernando Somoza Vivas, assignor to International Fireproof Products Corporation, New York, N. Y. Filed Nov. 14, 1929. 6 claims. (Cl. 92-21).

1,839,136. Composition and process for fireproofing cellulose material. Fernando Somoza Vivas, assignor to International Fireproof Products Corporation, New York, N. Y. Filed Nov. 14, 1929. 9 claims. (Cl. 92-21).

1,839,158. Paper machine. Francis S. McDonnell, assignor to Herbert A. Baker, Norwood, 45). Fourdrinier wire and support therefore. Mass. Filed Oct. 2, 1929. 25 claims. (Cl. 92-1.839.163. Formation of paper bags. Alfons Pelz, Oppeln, Germany. Filed Oct. 11. 1929. 9 claims. (Cl. 93-11).

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Raw Material

Wood Chemistry. VI. Proximate Compositions of Two Kinds of New Pulp Woods. Y. Uyeda and H. Shoji. Cellulose Ind. (Tokyo) 7:16-17 (1931).—"Doronoki" (*Populus Maximowicsii*) and "Ezoyanagi" (*Salix rorido*) were analyzed with the following results: loss on drying 16.33, 10.74%; benzene extract 0.96, 1.48%; alcohol extract 1.04, 1.78%; cellulose 53.79, 55.07%; lignin 21.05, 27.44%; soluble pentosans 4.01, 2.62%. galactans—, 0.52%; ash 1.48, 0.87%; total pentosans 16.47, 13.74%. The contents of cellulose and lignin are similar to those of other pulp woods, the lack of mannans being noticeable.—A. P.-C.

Eucalyptus Trees for the Manufacture of Paper in Australia. Alban Voigt. Wochbl. Papierfabr. 62, No. 13: 306 (March 28, 1931).—Although there are some species of eucalyptus unsuitable for the manufacture of paper, other species can be made into a good pulp with yields of 50 to 55 per cent and possess good fibers whose length ranges up to 9 millimeters for the tracheids. A serious disadvantage is that the forests contain many different kinds of wood which naturally makes the harvesting of the wood very costly.—J. F. O.

Sugar Cane Straw for the Manufacture of Board for Building Purposes. Fred W. Freise. Wochbl. Papierfabr. 6, No. 28: 669 (July 11, 1931).—Numerous facts and figures concerning the status of the manufacture of board from sugar cane refuse in Brazil, prices, quantities available, yields, etc. The cane is pressed against a pulp stone, then cooked in a diffuser and finally treated in a beater. The finished fibers are from 5 to 25 millimeters in length.—J. F. O.

Process for the Manufacture of Fiberous Materials from the Residue in the Starch Recovery from Potatoes. Amelia Ubbelohde. Ger. pat. 541,298 (July 18, 1928). Addition to Ger. pat. 460,837.—In carrying out the process according to patent number 460,837, the cooking or the heating of the fiberous raw material is done in a flowing condition on a heated moving band.—J. F. O.

Deinking of Waste Paper. Robert Weber. Fr. pat. 705,385 (Nov. 12, 1930).—Paper pulp is made from old printed paper by treating the defibered paper with the caustification mud which is a by-product from the caustification of sodium carbonate or with the residual liquors from the manufacture of cellulose. Magnesium hydroxide and suspensions of salts of alkaline earth metals may also be present.—A. P.-C.

Process for the Manufacture of Pulp from Waste Papers. R. Weber. Belg. pat. 374,896 (Dec. 31, 1930).—Defibered waste papers are treated with sludge from the caustification of sodium carbonate. The solvent used consists of magnesium hydroxide obtained from spent carnallite liquors by treatment with alkaline liquors or with caustification sludges.—A. P.-C.

Steam Requirements of the Deinking Process. E. G. Milham. Paper Trade J. 93, No. 14: 40-41 (Oct. 1, 1931); Paper Mill 54, No. 40: 18, 20, 24 (Oct. 3, 1931).—A comparison is made of the steam consumption and cost of the low-density low-pressure and high-density high-pressure processes of cooking waste papers. The steam requirements are estimated at 3.56 and 1.37 pounds, respectively, per pound of waste paper, which can be reduced to 1.62 and 0.53 pounds, respectively, provided the defibering water is preheated to 186° and 140°F., respectively. The high-density process is more easily controlled and cooks hard inks more readily than the low-density process, but the latter produces a more easily washed and bleached stock. Everything considered (steam, power, labor, investment, chemicals, flexibility and quality) the low-density process, when properly installed and operated, shows a decided balance in its favor as compared with the high-density process.—A. P.-C.

Deinking Waste Paper Stock. Charles A. Shubert. Paper Trade J. 93, No. 13: 31-33 (Sept. 24, 1931).—As a result of experience with both rotary boilers and circulating boilers (Winestock process) the author favors the rotary boiler system, in spite of its higher labor and power cost and inconvenience of filling and dumping boilers, because of the superior quality of product obtained. Comparative costs for the two systems are given.—A. P.-C.

Deinking Wastes. C. C. Irving. Paper Trade J. 93, No. 13: 36 (Sept. 24, 1931).—A brief discussion of the problem of the utilization of the waste from paper deinking plants.—A. P.-C.

Method of Storing and Preserving Fibers. Treadway B. Munroe and Elbert C. Lathrop. U. S. pat. 1,813,632 (July 7, 1931).—In order to prevent fermentation and deterioration of bagasse, cornstalks, sorghum or other fibers suitable for the production of pulp for wallboard manufacture, the material is baled and piled in pyramidal form. The bales are piled so as to allow ventilation between the bales in the mass of the pile, and a suitable fungicide (alkali, alkaline-earth, copper, zinc or other heavy metal salts of hydrofluoric, fluosilicic, boro fluoric or boric acids; or these acids themselves; or compounds such as sodium dinitrophenolate, beta-naphthol, etc.) is applied to the exposed surfaces and edges on the outside of the pile, so that it is carried into the mass with additional moisture falling on the outside of the pile.—A. P.-C.

Cellulose and Lignin

Chemistry of Jute Lignin. I. A Comparative Study of Different Methods of Isolation. Pulin Behari Sarker. J. Indian Chem. Soc. 8, no. 7:397-405 (July, 1931).—Comparative tests are reported for the following methods of isolating lignin: Caustic soda under pressure (Mehta), hydrochloric acid (Willstätter and Zechmeister), sulphuric acid (Klason), alcoholic caustic soda process (Beckmann) and hydrochloric acid and phosphorus pentoxide (Wenzl). Of these methods, Willstätter's was found to be the best.—C. J. W.

Chemistry of Australian Timbers. I. Study of the Lignin Determination. W. E. Cohen and H. E. Dadswell. Council for Scientific and Industrial Research, Australia, Pamphlet No. 22. 1931. 27 p.—From the experimental data reported, a new procedure for the determination of the lignin content of wood is recommended. This requires the preliminary purification of the wood powder with *N*/8 sodium hydroxide for 80 min. at 98-100

deg. C. This removes substances of extraneous nature, shown to be present by microchemical studies, which are insol. in benzene-alcohol and remain with the lignin when isolated by the standard procedure. The concentration of alkali used does not attack the lignin of hemlock and spruce, the apparent loss in lignin being due to the removal of the extraneous material from the ray cells. After the preliminary purification of the wood material, the lignin is determined by the 72 per cent sulphuric acid method. Analyses are reported for the Canadian hemlock, Canadian spruce, Jarrah (*E. marginata*), red ironbark (*E. sideroxylon*) and mountain ash (*E. regnans*).—C. J. W.

Studies on Lignin and Related Compounds. IX. Ethers of Glycol-Lignin. Harold Hibbert and Léo Marion. Can. J. Research 5: 302-305 (Sept. 1931).—Glycol-lignin from spruce wood has been found to form a sodium salt which reacts with chloroderivatives, giving rise to the corresponding glycol-lignin ethers. These compounds are insoluble in aqueous sodium hydroxide but still contain free hydroxyl groups, which can be methylated without the ethereal linkage being broken. Hence, glycol-lignin contains several free hydroxyl groups, one or more of which possesses acidic properties. Both the methoxymethyl ether and the 2:4-dinirtophenyl ether of glycol-lignin have been prepared. The evidence would seem to indicate the presence of both phenolic and aliphatic hydroxyl groups.—A. P.-C.

Surface Conductance at the Cellulose-Water Interface. Kisou Kanamaru. Cellulose Ind. (Tokyo) 7: 62-92 (1932).—The specific nature of the interface is altered by chemical decomposition of the cellulose. Oxidation increases the surface conductance, while hydration decreases it up to a certain point, beyond which the conductance again increases as a result of the increased specific surface area. Mercerization of cellulose causes intermicellar changes and increases the surface conductance; between the concentration of caustic soda in the mercerization solution and the surface conductance there is the same relation as that between the concentration of mercerizing solution and swelling effects shown by the absorption capacity toward water and dyes. The surface conductance of cellulose is greatly decreased when it loses its hydrophylic property by esterification. The surface conductance of pulp depends upon the kind of raw material, manufacturing methods, degree of heating and washing and bleaching process. In general, cellulose treated with acid and then washed with water or subjected to electrodialysis shows higher surface conductance, because of the acid fixed on the surface. The effects of electrolytes on the surface conductance of various kinds of cellulose substances were studied. Aluminum sulphate shows a peculiar behavior; thus, a sample treated with alkali and washed with water at first decreased in Fs with increased concentration, this being due to aluminum hydroxide fixed on the surface. The studies on the relation between the surface conductance and the electrical insulating property proved that the former was a significant index of the latter.—A. P.-C.

Adsorptive Force of Cellulose for Ions. Kisou Kanamaru. Cellulose Ind. (Tokyo) 7: 101-118 (1930).—From the results of some previous experimental studies (Cellulose Ind. (Tokyo) 4, 259-284 (1928); 7, 3-16, 29-52 (1931)) a theory is advanced to explain the ionic behavior of cellulose and its derivatives in water or in solutions of electrolytes. The quantity and the nature of electrolytes fixed on the surface of cellulose vary with its history, such as washing with water, acid treatment, electrodialysis, etc. With chemical degradation of cellulose, the properties of its surface change also; oxycellulose is a typical acidoid; the hydration of cellulose increases its absorption potential toward anions; esterification diminishes the hydrophylic character and increases the hydroxyl-ion concentration on the surface; thus the affinity for anions becomes stronger and the cellulose retains acids obstinately. The swelling of cellulose is accompanied by the intermicellar changes; the intermicellar changes, shown by the mercerization band in Röntgen spectrum and the enlargement of space lattice are independent of so-called swelling effect and indifferent to heating.—A. P.-C.

Formation of Alkali Cellulose. G. Champetier. Compt. Rend. Acad. Sci. 192: 1593-1595 (1931).—By determining the amount of sodium in samples of cotton fibers left in contact under constant conditions with caustic soda solutions of varying concentration and by plotting the results against the concentration of the caustic soda, four points were obtained which corresponded to the following compounds: $2C_6H_{10}O_5.NaOH$, $3C_6H_{10}O_5.2NaOH$, $4C_6H_{10}O_5.3NaOH$, $C_6H_{10}O_5.NaOH$. The results indicate that the fixation of caustic soda by cellulose proceeds by a discontinuous series of definite molecular combinations.—A. P.-C.

Law of Patents for Chemists

The Inventors Publishing Company of Washington, D. C., has just announced another excellent book entitled, "The Law of Patents for Chemists," by Joseph Rossman, who is a member of the Technical Association of the Pulp and Paper Industry, and a patent examiner in the U. S. Patent Office. Doctor Rossman is also a member of the Bar of the United States Supreme Court and editor of the Journal of the Patent Office Society.

With the development of the American chemical and process industries, chemists, engineers, manufacturers and executives have been compelled to give greater consideration to patent matters affecting their work. Doctor Rossman's book has been prepared especially to meet their needs by giving a comprehensive, non-technical and accurate explanation of the essentials of chemical patent law which, previous to this, has not been available.

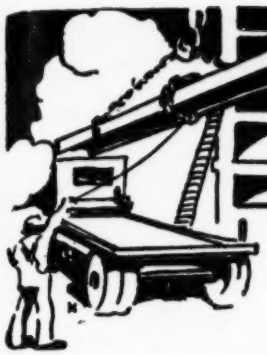
It tells the chemist what to do when he makes an invention, how to legally safeguard his rights, what procedure to follow, what precautions to take, how to prepare and file the application, how letters patent are finally secured and then how to dispose or enforce the commercial patent rights, as well as many other vital patent matters.

A few of the concretely helpful features of the book are: a glossary which clearly explains patent law terms; a reproduction of a few typical chemical patents; an illustrative example of a complete chemical patent application; citations for important chemical suits; and information how to search patent literature and keep up to date with recent patents.

Reliance on secrecy for safeguarding an invention is the exception today since patenting of an invention is now considered to offer greater assurance of protection. For the general benefit of the advancement of knowledge the publication of patents does much to prevent duplication of effort.

Among the points made clear in Doctor Rossman's book are the following: the kind of chemical inventions that can be patented; how to proceed to secure a patent; when to apply for a patent; who may obtain patents; when to keep secret or to patent; how to search the patent literature; what rights a patent gives; how patent rights are enforced; precautions to take in protecting inventions; how large corporations protect their inventions, how priority rights to patents are determined; how to determine the validity of a patent; the essentials of patent license and royalty agreements; rights between employer and employe; how to keep invention records; how to appraise a chemical invention.

These are a few of hundreds of similar points presented in this book of 304 pages, 5½ x 8½ which is obtainable through the Book Department of Technical Association of the Pulp and Paper Industry, 370 Lexington Avenue, New York. The Technical Association has done more than any other organization to stimulate research and invention in the pulp and paper industry. In giving publicity to this excellent book by Doctor Rossman it does so in an effort to further the technical development of this great industry.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Brooklyn, N. Y.—F. N. Burt & Co., Ltd., 514 Seneca street, Buffalo, N. Y., manufacturer of paper boxes and containers, has concluded arrangements for the purchase of the assets of Hefter & Company, 1 Junius street, Brooklyn, manufacturer of kindred products, which have been in receivership for a number of months. The property was secured for a stated consideration of $62,000 and has been approved by the Court; it includes the machinery, fixtures, good will, etc. Purchasing company will consolidate with its business and carry out expansion program.

Munising, Mich.—The Munising Paper Company, Munising, has arranged for an increase in capital from $900,000 perferred stock and 30,000 shares of common stock, no par value, to $900,000 preferred stock and 300,000 shares of common stock, no par value, for general expansion.

Indian Orchard, Mass.—The Fiberloid Corporation, manufacturer of fiber products, has approved plans for a one-story extension on Worcester street, to be used for storage and distributing service. General contract has been let to the Adams & Ruxton Construction Company, 1387 Main street, Springfield, Mass.

Baltimore, Md.—The Compap Products Company, 2205 Eutaw place, recently organized by Millard S. Leonard and A. Preston Osteen, and associates, is planning the establishment of a local plant for the manufacture of a line of paper products. Initial plant is reported to cost over $30,000, with equipment. It is expected to begin operations at an early date.

Dubuque, Iowa.—The Maizewood Products Corporation, Railroad avenue, manufacturer of wallboard and kindred paper products, using cornstalks as raw material, has superstructure under way on new one and four-story plant unit, 60 x 500 feet, and proposes to have the building ready for occupancy at an early date. It will replace a mill destroyed by fire a number of months ago, and is estimated to cost about $125,000, with equipment. A list of equipment to be used has been completed. W. L. Yokum, Inc., Roshek Building, Dubuque, is general contractor. A. Byron Hunicke is plant engineer.

Chicago, Ill.—C. Broccolo Paper Box Manufacturers, Inc., Chicago, have been organized by Francis J. Broccolo and associates, to take over and succeed to L. C. Broccolo & Co., with local plant at 1238 West Harrison street, manufacturer of paper boxes and containers. C. Broccolo will be an official of the new company.

Jacksonville, Fla.—The Southern Container Corporation will proceed at once with the construction of its proposed new plant at Commodore Point, Jacksonville, recently referred to in these columns. The company has taken over three buildings in the district noted, totaling about 20,000 square feet of floor space, and will remodel and improve for new line of output. Work will be placed under way on two new one-story units, 12 x 108 feet, and 24 x 50 feet, to be used for different departments of operation. A power house will be established for the new mill. A quantity of paper box manufacturing equipment has been purchased from the F. X. Hopper Company, Glenarm, Md., and will be shipped to new location at once. It is proposed to equip the plant for an initial output of about 15,000 paper containers per day. The company also proposes to operate a veneer plant in conjunction with the paper box factory. Entire development will cost over $65,000, with equipment, instead of a smaller amount, previously noted. The Southern Equipment Corporation, an affiliated interest, will be in charge of the plant construction program.

Boston, Mass.—The Ace Art Company, 12 Gould street, manufacturer of photographic papers and kindred specialties, has awarded a general contract to Martin White, Inc., 619 Washington street, Boston, for proposed new addition to plant in the Reading section, to be one and two-story, reported to cost about $35,000, with equipment. Work will be placed under way at once. David J. Abrahams, 260 Tremont street, Boston, is architect.

Emeryville, Cal.—The Paraffine Companies, Inc., 475 Brannan street, San Francisco, Cal., are operating a recently completed mill for the manufacture of linoleums, in addition to regular production at paper products plants. The new unit was built late last year, and has been designed for large output of quality material. It is expected to continue production on present basis for an indefinite period. R. S. Shainwald is president and general manager.

Chicago, Ill.—The Ideal Bag Manufacturing Company, 1551 Tell place, recently organized by Charles M. Lutz and George M. Levison, is said to be planning the early operation of a local plant for the manufacture of paper bags and containers. The new company is represented by Silber, Isaacs, Silber & Woley, 208 South La Salle street, Chicago, attorneys.

Joplin, Mo.—The Rice-Wray Manufacturing Company, manufacturer of paper and card-board novelties, paper knives and kindred products, has leased space in the McCrabb Building, McKinley avenue and Thirteenth street, and will occupy for a new plant. It is proposed to have the unit ready for service at an early date. Frank DeGood will be manager.

Preston, Ont.—Canada Sand Papers, Ltd., Preston, recently organized to manufacture sand paper, abrasive papers and materials, have taken over local property with about 25,000 square feet of floor space, and will occupy at once for a new plant. Equipment will provide for large output. E. F. Stark, formerly connected with Abrasives,

Ltd., Brantford, Ont., is manager of the new company. S. B. Grimes and W. M. Grimes will be in charge of plant production and operations.

Dallas, Tex.—Southwestern Seal and Label Company, Dallas, recently organized with a capital of $40,000 by Joseph Phillips, 1235 Kingshighway, Dallas, and associates, is said to be arranging for operation of a local paper converting plant for manufacture of a line of commercial paper goods.

New Companies

New York, N. Y.—The W. S. Brown Paper Products Corporation has been incorporated by Wallace S. Brown, 27 West 86th street, and associates with capital of $20,000, to manufacture and deal in paper products of various kinds. The company will be represented by William L. Greenfogel, 122 East Forty-second street, New York, attorney.

Chicago, Ill.—The Standard Paper Products Company, Inc., 52 East 20th street, has been organized to deal in paper goods of various kinds. The company is headed by Edwin F. Oeser, Jesse Williams and Olaf T. Johnson.

Detroit, Mich.—The Independent Waste Paper Company, 650 East Elizabeth street, has been incorporated with a nominal capital of $5,000, to deal in waste paper stocks. The incorporators are Victor W. Grossman, 1361 Estes avenue, Chicago, Ill.; Albert Goff and Carl J. Hoffman, 1601 Highland avenue, Detroit. Last noted is representative.

Stamford, Conn.—The Hudson Paper Company has been incorporated with a capital of $100,000, to manufacture and deal in paper products of various kinds. The incorporators are Herman and Benjamin Fertig, and M. M. Wilk, all of Stamford.

New York, N. Y.—The Keller-Dorian Paper Company, 390 Fourth avenue, has filed notice of increase in capital from $10,000 to $50,000 for general expansion.

Asheville, N. C.—Quality Papers, Inc., has been incorporated with a capital of $15,000, to deal in paper goods of various kinds. H. C. Jarvis, 15 Church street, Asheville, is principal incorporator and representative.

New York, N. Y.—Saybusch Paper Corporation, "Solali," Inc., has been incorporated with a capital of $20,000, to manufacture and deal in paper products of various kinds. Alfred F. Scheff, 15 East Fortieth street, New York, is the principal incorporator.

New York, N. Y.—The Mercantile Trading Corporation has been chartered with a capital of 50 shares of stock, no par value, to deal in paper products of various kinds. The incorporators are J. Waldman and M. G. Tooran, 220 Broadway, New York. Company is represented by Lawyers Albany Service, 116 Nassau street, New York.

New York, N. Y.—The Butler Paper Company, 225 Varick street, New York, has arranged for a change of company name to the Butler American Paper Company.

New Jones Pulper Bulletin Out

E. D. Jones & Sons Co., Pittsfield, Mass., has just issued a new bulletin carrying discussion and complete information relative to "The Jones Pulper" which has been designed for general use in paper mills for the purpose of reclaiming and reutilizing machine broke, cutter trimmings, finishing room waste, old papers, etc. Its purpose is to convert these waste materials into pulp without changing the fiber length or strength from their original condition, after first treated in the beaters and jordans.

Farnham Improved Vacuum Roll

The Farnham Vacuum Roll, manufactured by the Farnham Manufacturing Company, of Buffalo, N. Y., has been placed on the market, in response to the demand to more quickly remove the water from the paper stock of a cylinder or wet machine, and from the results obtained in actual work it is known positively that the roll increases the production of the paper machine.

The roll is placed at the wet end of the paper machine, immediately back of the last couch roll; the water is thus taken out of the sheet before it enters the press rolls and

IMPROVED SUCTION ROLL

thereby prevents the crushing of the paper and eliminates the felt marks, and on this account is invaluable to makers of paper or board. The amount of power required to drive is very small, in fact, the roll can be operated by means of the felt alone without injury to it, although the company recommends that it be driven.

The roll consists of a cast-iron center, in which is milled a number of grooves, and in these grooves are mounted brass partitioned plates, the edge of each plate being grooved to permit copper wire to be wound around the outside. These wires are securely fastened into the plates by riveting or calking and no fibrous packing or solder of any kind is used.

All the wearing parts are removable, and all are in plain sight where they can be examined readily and lubricated when necessary. This construction is so simple that there is nothing to get out of order and no repairs are necessary. Its first cost is its last cost. The water which is removed from the paper stock, full of grit and foreign matter, is taken out from both ends of the machine and does not pass through the pump.

This improved roll should interest every paper maker who is studying methods of improving his plant.

Bleach Tank White

Sleight Bituminous Products Company, of Keyser Building, Baltimore, Md., announce that on and after February 1, due to changes made in the manufacture of Dairy White to meet the specifications of the paper industry, it will be known as Bleach Tank White.

This unusual product—a bituminous solution in white—is the result of years of research work in the bituminous field, and for durability and appearance as a protective coating is unexcelled. It contains no oil or oxidizing ingredients, dries in a few minutes, and can be applied over damp surfaces.

Bleach Tank White is acid and alkali and waterproof, and is highly recommended for use in and around pulp and paper mills as a preventative of rust and corrosion. It is worthy of note that in a test made recently at the Canadian Forest Products Laboratory at Montreal, Que., Bleach Tank White effectively withstood a drastic treatment to determine its resistance to bleach liquors.

The Way Out of Chaos*

By William Bond Wheelwright

The paper industry is in chaos. Only once in the past quarter century can a similar condition of demoralization and depression be remembered. This was in 1914 when the uncertain, unpredictable course of the world war brought business to a halt and most industries were only marking time.

In the paper industry, a situation like unto the present resulted. Mills were running on part time, merchants were avoiding stocking goods, and prices depended principally on how badly orders were needed to keep the semblance of an organization intact.

Presently it became evident that America would have to supply a large part of the world whose sources had been dried up by war conditions. Domestic and foreign business increased by leaps and bounds. Everyone began to run to cover at once, thereby creating the most unexampled inflation of values.

No similar abnormal boom is conceivable, but a revival of better times is certain to be seen although the time for its return must remain conjectural. Many predict that when that time arrives, acceleration of business will be swift. The lowered inventories point to such a result, as buyers in anticipation of stiffening prices will attempt as always, to place their orders at the prevailing low levels, and profit by the inevitable rise.

Now is the time for all to place their house in order. There is a vast amount of house-cleaning necessary before a sounder basis for the future may be established.

So far as the paper industry is concerned "house-cleaning" means Standardization, Elimination and technical control.

Too many mills in the vain hope of increasing their tonnage under present conditions, have sought to do so by foisting new lines of staples and more lines of specialties on an already glutted market.

The fallacy of such action when money is more needed for immediate use than ever, is amply illustrated by the experience of many manufacturers who, having sunk their funds in excessive inventoried stocks have been obliged to dump large quantities on the market at ridiculous prices or who have had to submit to the policing of their banks.

Others have been offering prices which if continued spell commercial suicide for themselves or death for their competitors.

The solution or corrective for these conditions is within our reach. It is only necessary to cultivate faith in one another and to keep the faith once it is established. Presupposing the existence of sufficient good will and integrity on the part of the important companies of the industry, the plan I will submit is logical and sound. Present conditions offer an opportunity of putting it in force such as has not been previously known and may not soon occur again. If adopted now, we shall actually capitalize the depression and help to shake its hold by the release of frozen assets.

Getting Down to Brass Tacks

Let us first single out for example the condition in Bond paper.

In the price list of a certain large paper merchant are listed eighteen brands, priced on a graduated basis from unwatermarked Sulphite Bond in cases at 8½ cents lb. to 100 per cent rag at 50 cents per lb. The price of each of these grades is stepping on the heels of each higher grade. Few if any of the most experienced paper experts could take unidentifiable samples of each of these papers and arrange them in the order of their listed prices.

When I depicted the situation in a pamphlet which I published in 1919 entitled, "National Standards for the Paper Industry," an executive of one of the largest corporations of its kind, sized up the situation in the following striking manner.

"All of us buyers who make a bluff at looking wise and judging samples by intuition will object to any custom that will make the appraisal of paper quality certain and easy. It will be somewhat like the opposition of the Chinese guys who have learned twenty-five thousand separate characters representing words and are therefore violently opposed to a phonetic alphabet."

My proposal of simplification and standardization may well be regarded as a reform no less logical than the adoption of a phonetic alphabet. Possibly the recommendation that the number of different grades of standardized Bond papers be reduced to five was too radical. The fact remains that after, (though I do not claim as the result of,) my presentation of this proposal to the officials of a certain manufacturer of writing papers, the large number of grades of bond paper then made by them, was reduced to nine, where it has remained ever since.

We shall neither achieve World Peace nor Paper Peace without a limitation of armaments. In both cases the result is bound to be attended by great economies. How can it be worked out in a practical manner in the paper industry?

How Bond Papers Can Be Standardized

In March, 1924, the Testing Section of the Government Printing Office published a "Tabulation of Test Results on Commercial Bond and Ledger Papers." The compilation included 94 different samples of Bond and 39 of Ledger. The fiber content, sizing, ash, weight, bursting strength, thickness, tensile strength, stretch, folding endurance and tearing strength were recorded against each sample. From this table representing papers from many different mills, it would be entirely practical to set up standards for any reasonable number of grades, as might be elected by common consent of all the mills that subscribe to a "limitation of armaments." These grades together with their specifications, could be registered with the Division of Simplified Practice, United States Bureau of Standards, which would make adherence compulsory, and deviations liable to prosecution under the Clayton Act.

A joint committee could be appointed, which might wisely include one or more members not associated with any of the subscribers, to study the subject and submit their recommendations for the approval of the associated mills. Possibly provision might be agreed upon in advance, which would not call for unanimous agreement, but would never-the-less make a vote of the majority final and binding.

In like manner a joint cost committee which should be a permanent part of the Association, could, after thorough research and comparison of confidential cost sheets to be submitted by every member, suggest reasonable prices, subject to modification from time to time, in accordance

* Delivered before the Paper Makers' Advertising Club at its meeting in the Hotel Pennsylvania, New York, February 17.

with fluctuations in the cost of raw materials, as each grade might be affected by changing conditions.

If necessary, enabling legislation might be sought, to eliminate any danger of Government prosecution under any of the existing laws regarding restraint of trade, etc.

The custom of suggested resale prices initiated by the manufacturers of mill brand papers has worked out so satisfactorily, that there seems to be nothing to prevent the rule from working both ways.

What About Buyer Acceptance?

There are two sets of buyers to be considered in the probable acceptance of this program as applied to standard stock brands. 1. The paper merchants, and 2. The printers and consumers.

Their reactions can be safely predicated on the acknowledgments of my pamphlet on National Standards, previously mentioned. Let us examine a few typical comments. Names are withheld but will be confidentially supplied, together with the original letters, to an authorized committee, should one be appointed by manufacturers.

A Large Chicago Merchant: "In our business we stand loyally on the platform you are seeking to establish, but we sometimes feel that the aloneness or the aloofness is almost too painful to endure. Mental and moral stamina are what the paper industry and most all other industries need. So to answer your question more directly your proposal is reasonable and righteous altogether."

A Large DetroitMerchant: "National Standards for the Paper Industry, the meat of this is logical and I believe would be a splendid thing for the industry if there was any method of policing the trade."

President of one of the Leading Paper Goods Manufacturers: "I certainly approve of the direction in which you are traveling. The work I did in Washington the first part of the war made me appreciate the great wastes of surplus styles of goods. . . . The principle of self-policing has got to be accepted by American business or else we are in for a heavy amount of Government regulation."

Buyer for a Big Lithographic Company: "No one can disagree with your conclusions. If, however, you can get the mills to agree on their adoption, you deserve almost anything the trade can give you."

An Important Michigan Printer: "As a printer I think I am voicing the sentiment of other printers in saying that we are continually pestered by samples of this, that, or the other bond paper, which as you say can be bought only by a buyer of a good deal of discrimination and even then has to be used in a majority of places where a standardized article would do just as well or better.

"There is also the constant sampling to the trade which all of us realize is a tremendously big expense and must eventually come out of the consumer."

The examples of commendation could be greatly multiplied. There was no dissent, but considerable doubt that it would be possible to reconcile conflicting interests and bring about an agreement.

To discuss the applicability of the principles of standardization to all the ramifications of the paper business, would take far too much time at present. To prepare a complete plan would necessitate the meeting of many minds and the co-operation of experts in the various branches of paper making.

Is Such Co-operation Possible

George Washington, in his Farewell Address, said something that may help us to decide whether such a program is possible. He said: "In all the changes to which you may be invited, remember that time and habit are at least as necessary to fix the true character of governments as of other human institutions. That experience is the surest standard by which to test the real tendency of the existing constitution of a country."

What is the "true character" of the paper industry, and by what experience may the "real tendency" of its "existing constitution be tested"? The American Paper and Pulp Association is beginning its fifty-fifth year and the National Paper Trade Association its twenty-ninth. The former has become highly organized. With its Technical Association, its Cost Division and its sub-divisions representing various branches of the industry, it is perfectly equipped to inaugurate the "change to which you are invited."

The National Paper Trade Association is no less well prepared to act the important part it would be called upon to play.

The character of the individual members of both organizations is of as high an order as may be found in any industry that exists. There is strength enough in each to enforce any program they may decide to adopt. It is merely necessary to persuade them of the wisdom of the plan.

Possibly the most illuminating experience in an undertaking analogous to the one now proposed, is to be found in the founding and success of the "Paper Makers' Advertising Club" organized seventeen years ago.

Its aim was partly idealistic but its activities have proved entirely practical. Its membership has grown from thirteen to twenty-five. Its efforts represent the only constructive, co-operative scheme ever devised by paper manufacturers to increase the use of printing papers. It has spent thousands of dollars educating others in the value and technique or direct advertising and its quarterly publication reaching the most important printers and advertisers has done much during the fifteen years of its existence to stimulate interest in printed publicity, to cultivate better printing and to encourage the use of the finer qualities in papers. Even the mills who have not participated in its work have shared the benefits bestowed.

Nothing else has contributed so much to the acceptance of "mill brands" made at a reasonable profit, sold at a satisfactory mark-up and on a basis that eliminates cut-throat competition while giving "value received" to the ultimate consumer.

At the same time its members have enjoyed the most efficient and economical advertising service ever devised. Their brands have gained in prestige and become accepted standards for quality.

The experience of the Paper Makers' Advertising Club proves beyond a doubt that when competing mills join hands in a sound constructive movement they can confer a benefit alike on themselves and those whom they serve.

The Crowning Achievement

Standardization and simplification must not be interpreted as implying loss of individuality. There will remain the same opportunity for craftsmanship and ingenuity as before. Granted that its application to fancy papers and specialties is problematical, so far as the staple lines of papers, stocked and distributed by merchants is concerned, the advantages cannot be overestimated or denied.

From the production point of view, economies are inherent. Longer runs mean lower costs and higher specialization better workmanship. Viewed from the selling angle, fictitious values are destroyed and higher ethics become possible. Nowhere as at present, may mere names cloak the same grades and command varying prices which not only operate so as to place some mills in competition

(Continued on page 50)

Good Housekeeping Aids In Safety and Efficiency

By F. H. Rosebush[1]

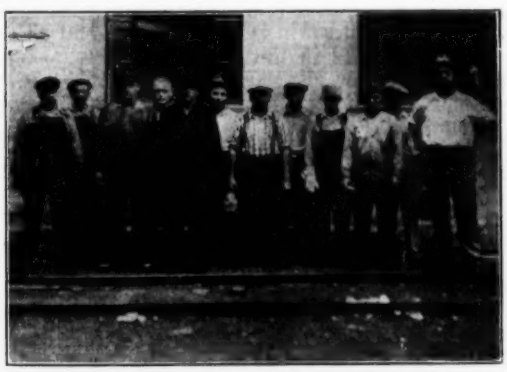
Good housekeeping and safety go hand in hand. Safety —that is, safeguarding, education in thinking safety, safe practices—presume good housekeeping. Dirt is evidence of an absence of care; a symbol of indifference; a companion of laziness. It is an evidence of lack of ambition, generally found in the work of a foreman or employee who is in a rut. If manifests itself, not only in its physical presence, but in the workmanship of the individual. It is reflected in his dress, attitude toward his job, and in the manufactured product. Systematic training and a follow up system are necessary to insure good housekeeping just as much as training in Safety, methods of production, care and use of tools, and proper attendance to work.

An example of the close relationship between safety and good housekeeping may be cited in the case of greasy or slippery floors. Anyone working where floors are slippery realizes the dangers involved. Truckers are especially subjected to this hazard, for in winter time many of them wear rubbers and it is almost an impossibility to pull a loaded truck at all without great danger. Under such conditions workmen carrying tools or material often have serious injuries caused by falls on slippery stairs and floors.

Lack of light is another cause of accidents. Dirty windows, obscuring the light, or lack of sufficient artificial light couses many accidents. An otherwise dirty corner, storage room or hallway is often cleaned up when sufficient light has revealed dirty conditions; and besides, the dark corner, store room, or hallway almost always catches all the discarded refuse.

Dust or other refuse often covers defects in machinery which sometimes result in accidents, loss of production and delays.

Good tools are examples of close relationship between



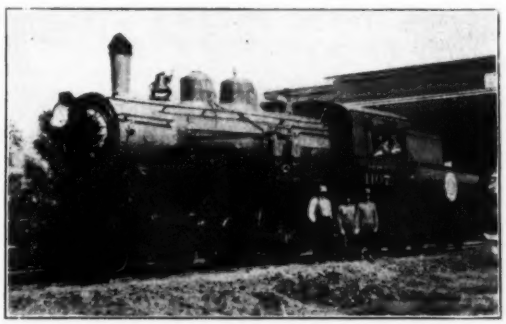
NEKOOSA BOILER HOUSE CREW—ONE YEAR WITHOUT ACCIDENTS.

safety and good housekeeping. Chisels with ragged edges; hammers with broken handles or loose heads; chains with faulty links; ladders with worn rungs or loose cleats are examples of poor housekeeping. Many plants have either a tool room or some one delegated to inspect tools to see that they are properly dressed and fitted before being turned over to workmen. This also saves much time on part of workmen running to blacksmith shop or carpenter shop to get their own work done on defective tools and having to wait for one another to get such work done.

[1] Dept. of Industrial Relations, Nekoosa Edwards Paper Co., Port Edwards, Wis.

Before passing on to specific recommendations on a follow up system of housekeeping, one other instance of the coordination between safety and housekeeping will be given, and that is the big one of handling and piling and storage of product.

During some seasons of the year it is necessary for many industries to carry on hand large stocks of manufactured goods. Warehouses become congested with stock piled to the ceilings and so close that passage ways are left very narrow and hazards become much greater. Here is op-



PORT EDWARDS ENGINE CREW.

portunity for good housekeeping to be used very effectively. Great care should be used in storing product so that it will not endanger workmen and that it may be shipped out without unnecessary danger. Aisles should be kept clear, clean, well lighted, and wide enough to insure safety at all times. Thought should be given in piling stock so that it can be removed with little labor cost and danger, and at the same time with reasonable speed.

Certainly good housekeeping enters in here. Other examples might be given, but let us pass on to the follow up system of good housekeeping.

Two different kinds of housekeeping reports are used in our plant. Our "Workmen's Combined Safety and Housekeeping Report" includes 22 questions on the three divisions of "Buildings," "Guarding," and "Electrical Hazard," with separate columns for "Paper Mill" and "Sulphite or Sulphate Mill." It is printed on a green sheet, both sides, and is intended for the use of the Workmen's Safety Committee and the Safety Inspector.

The Workmen's Committee uses this report in making its regular monthly report and the Safety Inspector uses it weekly. The signatures at the bottom of the back explains who has made the report. Copies of this report, both Workmen's and Inspector's, go to General Manager and Mill Manager and each superintendent. In this way every one of the management knows the recommendations, criticism, and suggestions made. The follow up comes from the General Manager and Mill Manager. The back of the green report blank is intended for safety and housekeeping recommendations.

The other report is printed on white paper, one side. Each department is given a standard rating. Some departments are expected to be cleaner, from the nature of the work, than others but each is expected to approximate its standard. These standard ratings vary from 85 for the Recovery Rooms and 88 for the Liquor Room of the Sulphate Mill, to 98 for such departments as Stock Room

Digesters, Bleaching Plant, Toilet Rooms, Mill Offices Many of the departments have a standard rating of 95. The Safety Inspector rates each department each week. These reports go to the General Manager, Mill Manager, Superintendents and head of each department, with sufficient copies to be posted in each department. The follow-up is done by General Manager, Mill Manager and Superintendent.

Departments having lower ratings than demanded on their standards, lose on bonus money otherwise paid them. This includes all men and foremen. This report has percentage columns for the four weeks of the month and the two mills.

The plan of Housekeeping Reports has been in effect some four years, the bonus addition to the plan less than a year. The penalties are based on the number of points lost. Let us take, for instance, a department which has a standard rating of 98 per cent. For each two points or less of demerit marks, one point is deducted from Bonus money.

Suppose this department of 98 per cent standard is rated during the four weeks of the month at 90, 92, 93 and 95. The average rating would be 92.5 per cent. If the department was entitled to 13 per cent bonus of monthly wages, then one half of 5.5 points or 3 points would be deducted from the bonus and the crew would then be entitled to but 10 per cent bonus. If, for example, we take the monthly pay to be $100.00, each man would lose $3.00 on that month's pay and the Foreman would lose proportionately.

The result is clearly seen; departments are kept clean, the interest of all concerned is kept up. Safety, which cannot be separated from good housekeeping, is not only a matter of humanity, brotherly consideration and sympathy, but is also a matter of dollars and cents. While no one should be encouraged to practice safety only because of a money consideration, yet it does make the results more emphatic and drives home the lesson that Safety does pay. It reminds one of the woman who married a good husband, though poor. She gave this advice to her marriageable daughter "Marry for love, my dear, but it would do no harm and might mean more happiness if you should fall in love with a man who has money."

Due to such a system the physical appearance of departments is kept more orderly. More attention is given to housekeeping and safety, production is helped, the ultimate idea of training people in habits of safety and orderliness is advanced. How does it affect the standards and records of safety? How does a clerk with pleasing personality in a woman's clothing department of a store affect the company's sales? You know the value is there, but how do you measure it? How do you measure an act, a word, a bit of advice that leads to safety? There are some things—thank God!—that we can't measure in terms of dollars and cents, and effort for better safety is one of them.

There have been definite results from this system of checking up on safety and housekeeping. More interest has been shown, both in safety and housekeeping. Both plants are cleaner and safer.

Mercon Regulator Co. Appoints

The Mercon Regulator Company, of 1 La Salle street, Chicago, announces the appointment of R. E. Chase & Co., of Tacoma, Washington, as its representative for the states of Washington, Oregon, and Idaho. The Chase organization will handle the full Mercon line of pressure, flow, and level controllers.

THE WAY OUT OF CHAOS

(Continued from page 48)

with themselves but encourage unscrupulous practices among distributors.

Manufacturers and dealers alike, will be able to carry on their affairs with greatly decreased inventories. The burden of stocking papers which has of late years been disproportionately thrown back upon the mills, due to the multiplication of superfluous grades, will tend to return to the merchants whose natural function as wholesalers it is. Thus the drift toward merchandising paper on practically a brokerage basis will be checked. The future of the merchants will be surer, while their salesmen whose minds are now confused by encyclopaedic price lists, will be cleared. They will be better able to function as salesmen rather than as automatons.

Obviously advertising appropriations now spread thin to cover a multiplicity of lines, may either be substantially reduced or applied much more effectively by their new possibilities of concentration.

The readjustment may call for primary losses inherent in the closing out of lines to be discarded, but ultimate returns will offset them a hundred fold. Confusion will melt before concentration.

Today when inventories are at low tide, presents the grandest opportunity in a life-time for this wise and profit-promising reform. The psychological moment is at hand. The leadership of our Nation is in the hands of America's high priest of standardization and simplification. The bankers will approve it, the merchants and consumers applaud it. For the paper industry it offers the one, the only promising way out of chaos.

Columbian Clasp Development

The United States Envelope Company through its general offices at Springfield, Mass., has announced an important development in its Columbian Clasp line. Hereafter this well-known clasp will be offered in brown and gray kraft as well as the long familiar natural color XXXX stock. The kraft lines will be 32 substance and all three colors will be carried in thirty-three sizes.

The announcement also states that Columbian Clasps can be secured at no extra cost in boxes of 100, and with flaps gummed if desired.

In connection with the establishment of these new lines the manufacturer states "Regard for the general interests of the paper trade, and especially its inventory problems, has led us to adhere strictly to a policy of one universally known, quick selling item until such time as the trade could genuinely benefit from a change. Such a time has now arrived in the opinion of the majority of the members of the paper trade. It is apparent that a sufficient number of customers prefer a choice of color to warrant the merchant's and printer's attention to this matter. Hence this change in policy."

Samples of the new colors have been released to the trade and may be secured by addressing the general office or any division of the company.

New Controlled Welding Booklet

Leader Iron Works, Inc., of Decatur, Ill., has just published an illustrated booklet containing facts regarding the correlation of positive known factors to secure positive known results on exacting welding jobs, where ordinary manual welding will not do and where complete welding is impractical. Copies may be secured upon application.

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

TRADE MARK

WE enjoyed visits from a large number of our friends from the Paper Mills during the Convention. All expect more business for the Mills which means Heller & Merz Quality and Service will be needed more than ever. Bring your color problems to us.

HELLER & MERZ CORPORATION
286 Spring St., New York, N. Y.

Boston
35 Hartford St.

Chicago
146 W. Kinsie St.

Springfield, Mass.
40 Albert St.

Philadelphia
South St. & Delaware Ave.

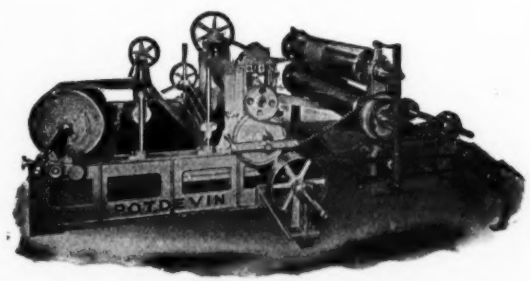
Factory—NEWARK, N. J.

POTDEVIN

PAPER WAXING MACHINERY

Three Widths—52" - 64" - 80"

LIGHT OR HEAVY COATING
WET OR DRY WAX
ONE OR BOTH SIDES



POTDEVIN MACHINE CO.
1223 38th Street, Dept. 4, Brooklyn, N. Y., U. S. A.
Phones: Windsor 1700, 1701, 1702

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

SUMMARY

WEEK ENDING FEBRUARY 20, 1932

Cigarette paper	166 cs.
Wall paper	29 bls., 2 cs.
Paper hangings	3 bls., 2 cs.
News print	7102 rolls
Printing paper	6 crates, 31 cs.
Packing paper	85 bls., 8 cs.
Decalcomania paper	46 cs.
Drawing paper	10 cs.
Filter paper	9 cs.
Baryta coated paper	64 crates, 52 cs.
Surface coated paper	3 cs.
Metal coated paper	48 cs.
Photo paper	12 cs.
Basic paper	112 rolls, 53 cs.
Coated paper	5 cs.
Parchment paper	23 cs.
Colored paper	22 cs.
Tissue paper	26 cs.
Envelopes	6 cs.
Writing paper	19 cs.
Letter paper	7 cs.
Detail paper	23 cs.
Bowl paper	5 bls.
Transfer paper	20 cs.
Wax paper	14 cs.
Cover paper	3 cs.
Card board	360 cs.
Card board boxes	3 cs.
Paste board	25 cs.
Miscellaneous paper	64 rolls, 124 bls., 19 cs

CIGARETTE PAPER

Champagne Paper Corp., Ile de France, Havre, 55 cs.
Standard Products Corp., Ile de France, Havre, 94 cs.
Gluckman & Strauch, Ile de France, Havre, 2 cs.
Gluckman & Strauch, A. Ballin, Hamburg, 5 cs.
———, Majestic, Southampton, 10 cs.

WALL PAPER

F. J. Emmerich, Antonia, Liverpool, 4 bls.
F. J. Emmerich, Ile de France, Havre, 7 bls.
F. J. Emmerich, A. Ballin, Hamburg, 7 bls.
Globe Shipping Co., A. Ballin, Hamburg, 7 bls.
A. C. Dodman, Jr., Inc., A. Merchant, London, 4 bls.
J. E. Bernard & Co., WDresden, Bremen, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., A. Merchant, London, 3 bls.
Whiting & Patterson Co., Inc., Majestic, Southampton, 2 cs.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 5274 rolls.
Parsons & Whittemore, Inc., Gotha, Bremen, 160 rolls.
Jay Madden Corp., Gotha, Bremen, 617 rolls.
———, Gotha, Bremen, 97 rolls.
Jay Madden Corp., Dresden, Bremen, 512 rolls.
Perkins Goodwin & Co., Dresden, Bremen, 347 rolls.
———, A. Ballin, Hamburg, 95 rolls.

PRINTING PAPER

Oxford University Press, Antonia, Liverpool, 9 cs.
E. Dietzgen & Co., Inc., A. Merchant, London, 6 crates.
E. Dietzgen & Co., Inc., Bilderdyk, Rotterdam, 28 cs.
E. Dietzgen & Co., Inc., A. Ballin, Hamburg, 8 cs.
Japan Paper Co., Saturnia, Trieste, 12 cs.

PACKING PAPER

C. Steiner, Bilderdyk, Rotterdam, 85 bls.
Union Selling Co., A. Ballin, Hamburg, 8 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Antonia, Liverpool, 32 cs. (duplex)
C. W. Sellers, Dresden, Bremen, 8 cs.
C. W. Sells, Bremen, Bremen, 6 cs.

DRAWING PAPER

Devoe & Raynolds Co., Ile de France, Havre, 4 cs.
H. Reeve Angel & Co., Inc., A. Merchant, London, 6 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., A. Merchant, London, 6 cs.
H. Reeve Angel & Co., Inc., Majestic, Southampton, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Gotha, Bremen, 52 cs., 20 crates.
Globe Shipping Co., Dresden, Bremen, 44 crates.

SURFACE COATED PAPER

Gevaert Co. of America, Coahoma County, Antwerp, 3 cs.

METAL COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 45 cs.
Taub Hummel & Schnall, A. Ballin, Hamburg, 3 cs.

PHOTO PAPER

American Express Co., A. Merchant, London, 11 cs.
———, A. Ballin, Hamburg, 1 cs.

BASIC PAPER

Globe Shipping Co., Bremen, Bremen, 28 cs.
———, Gotha, Bremen, 25 cs.
C. Bruning & Co., Bilderdyk, Rotterdam, 112 rolls.

COATED PAPER

Huppel & McAvoy, A. Ballin, Hamburg, 5 cs.

PARCHMENT PAPER

Dingelstedt & Co., Dresden, Bremen, 12 cs.
———, Gotha, Bremen, 10 cs.
F. C. Strype, Coahoma County, Antwerp, 1 cs.

COLORED PAPER

American Express Co., Gotha, Bremen, 1 cs.
J. Beckhard, Dresden, Bremen, 14 cs.
S. Gilbert, Bremen, Bremen, 5 cs.
F. Murray Hill, A. Ballin, Hamburg, 2 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Antonia, Liverpool, 3 cs.
———, Majestic, Southampton, 3 cs.
P. J. Schweitzer, Pr. Hayes, Marseilles, 20 cs.

ENVELOPES

J. Beckhard, Bremen, Bremen, 6 cs.

WRITING PAPER

Marshall Field & Co., Ile de France, Havre, 7 cs.
Simfred Inc., Ile de France, Havre 1 cs.
Japan Paper Co., Ile de France, Havre, 7 cs.
Winsor Newton, Inc., A. Merchant, London, 4 cs.

LETTER PAPER

Japan Paper Co., Saturnia, Trieste, 7 cs.

DETAIL PAPER

Globe Shipping Co., Gotha, Bremen, 23 cs.

BOWL PAPER

Hurley Johnson Corp., Antonia, Liverpool, 5 bls.

TRANSFER PAPER

F. L. Kramer & Co., Dresden, Bremen, 20 cs.

WAX PAPER

D. Gestener, Majestic, Southampton, 7 cs.
Ipex, Inc., Bilderdyk, Rotterdam, 7 cs.

COVER PAPER

International F'd'g Co., A. Ballin, Hamburg, 3 cs.

CARDBOARD

American Express Co., A. Ballin, Hamburg, 360 cs.

CARD BOARD BOXES

Framerican Importing Co., Pr. Hayes, Marseilles, 3 cs.

PASTE BOARD

———, Dresden, Bremen, 25 cs.

MISCELLANEOUS PAPER

Charta Corp., Kinai Maru, Kobe, 1 cs.
Corn Exchange Bank Trust Co., Kinai Maru, Kobe, 3 cs.
P. Puttmann, Ile de France, Havre, 1 cs.
Keller Dorian Paper Co., Majestic, Southampton, 4 cs.
The Borregaard Co., Inc., Drottningholm, Gothenburg, 64 rolls.
Kreamer & Co., Drottningholm, Gothenburg, 102 bls.
E. H. Sargent & Co., Drottningholm, Gothenburg, 5 cs.
———, Bilderdyk, Rotterdam, 5 bls.
Walker Goulard Plehn Co., Bilderdyk, Rotterdam, 17 bls.
National Freighting Co., A. Ballin, Hamburg, 3 cs.
R. U. Delapenha, Pr. Hayes, Marseilles, 2 cs.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., Victoria, B. Ayres, 173 bls. Hessian scrap.
Continental Bank & Trust Co., Lorain, Havre, 178 bls bagging.
J. Cohen Son Inc., Antonia, Liverpool, 17 bls. rags.
E. J. Keller Co. Inc., Coahoma County, ———, 71 bls. thread waste, 45 bls. bagging.
Banco Com'l Italiana Trust Co., Lucia C., Naples, 45 bls. rags.
Banco Com'l Italiana Trust Co., Lucia C., Trieste, 90 bls. bagging.
A. W. Fenton, Inc., Saturnia, Trieste, 36 bls. rags.
Bank of N. Y. & Trust Co., Saturnia, Trieste, 90 bls. rags.
Banco Com'l Italiana Trust Co., Saturnia, Trieste, 43 bls. rags.
Castle & Overton, Inc., Ingria, Barcelona, 90 bls. rags; 138 bls. jute waste.
Darmstadt, Scott, Courtney, Ile de France, Havre, 16 bls. paper stock.
Castle Overton, Inc., Ile de France, Havre, 32 bls. paper stock.

HIDE GLUE

———, Saturnia, Trieste, 105 bags.

OLD ROPE

E. J. Keller Co. Inc., A. Merchant, ———, 97 coils.
Brown Bros. Harriman & Co., Cabo Tortosa, Pasages, 203 rolls.
Brown Bros. Harriman & Co., Ingria, Barcelona, 111 coils.

WOOD PULP

Johaneson Wales & Sparre, Inc., Dalarve, Sundsvail, 4400 bls. sulphite, 838 tons.
Castle & Overton, Inc., New Britain, Rotterdam, 170 bls. wood pulp, 34 tons.
J. Andersen & Co., Drottningholm, Gothenburg, 250 bls. sulphite.
Perkins Goodwin & Co., Drottningholm, Gothenburg, 593 bls. sulphate; 254 bls. sulphite.
E. M. Sergeant & Co., Drottningholm, Gothenburg, 200 bls. sulphite; 748 bls. Kraft soda.
Gottesman & Co., Inc., Drottningholm, Gothenburg, 900 bls. sulphite.
Pagel Horton & Co. Inc., Argosy, Gefle, 3875 bls. sulphite, 787 tons.
Bulkley Dunton & Co., Argosy, ———, 500 bls. wood pulp, 101 tons.
———, Argosy, Iggesund, 875 bls. sulphite, 175 tons; 1375 bls. sulphate, 275 tons.
Castle & Overton, Inc., A. Ballin, Hamburg, 550 bls. wood pulp, 110 tons.
J. Andersen & Co., Saturnia, Trieste, 130 bls. wood pulp.

WOOD FLOUR

Innes Speiden & Co., Drottningholm, Gothenburg, 726 bags.

PORTLAND IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Gottesman & Co., Inc., Griesheim, Sweden, 2950 bls. wood pulp.
Gottesman & Co., Inc., Hedderheim, Sweden, 2188 bls. wood pulp.

(Continued on page 54)

FINE FELTS for FINE PAPERS

FOR CYLINDER AND FOURDRINIER MACHINES

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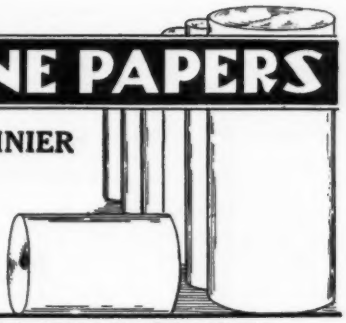

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SKANEATELES FALLS, N.Y.

PAPER MAKERS' DRYER FELTS TRIUNE and MULTIPLE PLY

Serve every Felt Purpose in an efficient and satisfactory way.

60" to 288"

ENGLISH or BAKER WOVEN

Made in three, four, five and six ply—60" to 214" wide.

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FITCHBURG, MASS.

For 88 Years Makers of Fine Faced Felts For Papermakers

WOOD PULP AGENTS

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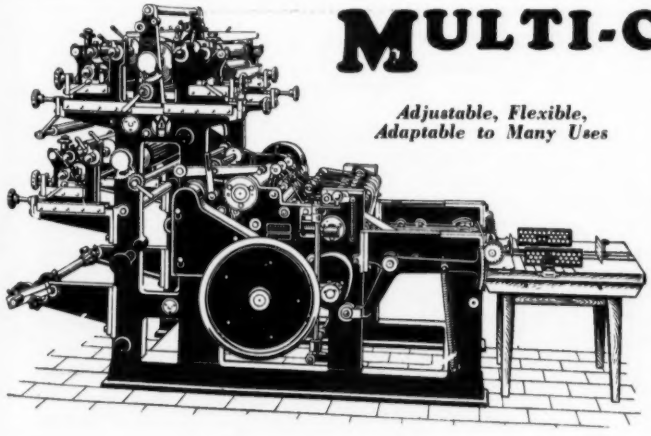

MULTI-COLOR Aniline Press

Adjustable, Flexible, Adaptable to Many Uses

3 or 4 colors. Slits and rewinds the web, or cuts it up into sheets of various sizes. Cuts a straight (not serrated) edge. Can be used as a separate unit or directly connected with reel-fed bag or other machines. Also adjustable to print both sides at once.

For printing on CELLOPHANE, as well as glassine, all printing papers, kraft, etc. Prints continuous background patterns, fancy box wrappings, candy wrappers, and various rolls used by paper goods, tissue and bag manufacturers. Two models, with reel widths of 19¾ and 39⅜ respectively. Speeds up to 7700 yards of web or 9000 sheets per hour.

Manufactured by Windmoeller & Hoelscher

H. H. HEINRICH, INC.
200 Varick Street, New York

Imports of Paper and Paper Stock

(Continued from page 52)

BOSTON IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Bulkley Dunton & Co., Dalarve, ——, 5000 bls. wood pulp, 1000 tons.
——, Dalarve, Hernosand, 1500 bls. sulphite, 250 tons.
T. M. Duche Lous, Inc., Coachoma County, Antwerp, 470 bags glue stock.
American Express So., Coachoma County, Antwerp, 98 rolls wrapping paper.
Atkinson Haserick & Co., Pr. Hayes, Geneva, 1 cs. wrapping paper.
J. Andersen & Co., Lucia C., Trieste, 130 bls. wood pulp.
Gottesman & Co., Inc., Innaren, Sweden, 1200 bls. wood pulp.
Parsons & Whittemore, Inc., Wanja, ——, 250 bls. kraft pulp.
Parsons & Whittemore, Inc., Westpool, ——, 125 bls. sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Darmstadt Scott & Courtney, Lorain, Dunkirk, 133 bls. rags.
J. M. Hagy Waste Works, Lorain, Dunkirk, 78 bls. rags.
I. W. Heisley, Lorain, Dunkirk, 16 bls. rags.
Union Waste Co., Lorain, Dunkirk, 25 bls. rags.
H. W. T. Mali, Kinai Maru, Kobe, 175 bls. wipers.
Price & Pierce, Ltd., Argosy, Wallvik, 2406 bls. sulphate, 401 tons.
Irving Trust Co., Argosy, Iggesund, 125 bls. sulphite, 25 tons.
Bulkley Dunton & Co., Argosy, ——, 2500 bls. wood pulp, 508 tons.
F. Weber & Co., Coahoma County, Antwerp, 15 cs printing paper.
J. E. Bernard & Co., Coahoma County, Antwerp, 5 cs. printing paper.
J. Andersen & Co., Lucia C., Trieste, 546 bls., wood pulp.

NORFOLK IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Parsons & Whittemore, Inc., Gotha, Bremen, 83 rolls news print.

NEWPORT NEWS IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Price & Pierce, Ltd., Argosy, Wallvik, 16080 bls. sulphate, 4500 bls. sulphite.
Stora Kopparberg Corp., Argosy, Gefle, 211 rolls news print.
Castle & Overton, Inc., Gotha, Hamburg, 415 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Parsons & Whittemore, Inc., Gotha, Bremen, 170 bls. wood pulp, 57 rolls, news print.
Atterbury Bros., Inc., Gotha, Hamburg, 1200 bls. wood pulp.
Castle & Overton, Inc., Gotha, Hamburg, 2590 bls. wood pulp.
——, Gotha, Hamburg, 586 bls. wood pulp.
Jay Madden Corp., Gotha, Hamburg, 96 rolls news print.
——, Dalarve, Hernosand, 2100 bls. sulphite 350 tons.
Johaneson Wales & Sparre, Inc., Dalarve, Sundsvall, 2500 bls. sulphite, 457 tons.
Bulkley Dunton & Co., Dalarve, ——, 8605 bls. wood pulp, 1746 tons.
Parsons & Whittemore, Inc., Eschersheim, ——, 250 bls. kraft pulp.
Parsons & Whittemore, Inc., Scheldilju, ——, 1330 bls. wood pulp.
Parsons & Whittemore, Inc., Berengar, ——, 170 bls. wood pulp.
Gottesman & Co., Inc., Beemsterdyk, Germany, 550 bls. wood pulp.
Gottesman & Co., Inc., Innaren, Sweden, 1925 bls. wood pulp.

HOUSTON IMPORTS

WEEK ENDING FEBRUARY 20, 1932

——, Gotha, Hamburg, 688 bls. bagging.

GALVESTON IMPORTS

WEEK ENDING FEBRUARY 20, 1932

Burka Bagging Co., Inc., Gotha, Bremen, 141 bls. bagging.
——, Gotha, Bremen, 320 rolls, news print.

To Direct Forest Survey in South

Inman F. Eldredge has been chosen regional director of the Forest Survey in the South, it is announced by the Forest Service, U. S. Department of Agriculture.

This work in the Southern States is part of the nation-wide survey under the leadership of the Federal Forest Service. The McSweeney-McNary forest research act of 1928 authorized this work which is designed to determine accurately the remaining timber supplies, the rate at which the forests are growing, the rate of depletion by cutting, fire, insects, disease, and floods, and the present and prospective needs of the people and industries of the United States for forest products. With this information it will be possible to say not only whether the United States can balance its forest products budget, but also what economic benefits through forest production may be expected from the huge acreage of forest land in this country.

The South was selected as one of the first areas for study because of its tremendous importance as a forest region. The Southern States contain a third of the Nation's forest land, produce a third of the softwood, and half of the hardwood lumber, and all of the domestic supply of naval stores. Active work on the Survey is now under way in Mississippi, and it will be extended throughout the South as rapidly as funds permit.

Sixteen years in the Forest Service, beginning in 1909, have given Mr. Eldredge, who is a native of South Carolina, opportunity to become familiar with forest conditions and the technical and economic problems affecting forestry and the forest industries throughout the United States. During his first eight years in the Government service Mr. Eldredge was supervisor of the Choctawhatchee and Ocala National Forests in Florida, where he pioneered in developing an improved method of turpentining which is in general use in the South today, and which acted as a powerful conservation measure in curtailing the turpentining of immature trees.

Eldredge served as captain in the Tenth Engineers (forestry) in France in the World War, where he became familiar with French forestry and naval stores operations in the pine region of southwestern France.

For the last six years Mr. Eldredge has been forest manager of a 200,000 acre private forest property in southeastern Georgia on which he has been developing intensive forest management for naval stores, lumber, and other forest products. With his broad technical and practical training, and his intimate knowledge of much of the South, Eldredge is regarded by the Forest Service as equipped to make the Forest Survey yield the greatest possible results to the South.

The headquarters for this propect in the South is at the Southern Forest Experiment Station at New Orleans.

Dr. Baker Heads N. Y. Foresters

ALBANY, N. Y., February 23, 1932—Many prominent foresters of Northern New York attended the annual meeting of the Society of American Foresters held in this city recently. Elmer Kieb, forester for the St. Regis Paper Company, and Floyd M. Callward, head of the forestry department at St. Lawrence University, were members of the nominating committee and prepared the list of officers which resulted in the election of Dean Hugh P. Baker, of Syracuse University, as the new chairman of the state organization.

During the session it was voted to enroll Governor Roosevelt as an association member and Dr. N. L. Britton, nationally know forester, as an honorary member. A number of interesting addresses on the progress of forestry were delivered at the meeting.

THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.

PAPER MILL MACHINERY

LEE, MASS.

Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
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MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

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Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York — 35 East Wacker Drive Chicago
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Dietz Towel Interfolding Machines

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TOILET PAPER MACHINES
For making Toilet and Paper Towel Rolls (With or without perforations)

AUTOMATIC TUBE MACHINES
For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
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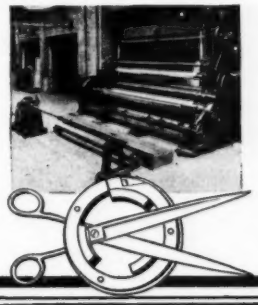

FOR clean, square-edged, tightly wound rolls, Langston Slitters are unequaled. The Shear-Cut parts the paper cleanly—instead of *crushing* it. Ask for details.

Samuel M. Langston Co., Camden, N. J.

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY

CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY

75-77 Dunne St., N. Y., and direct

Fourdrinier Wires, all widths up to 300 inches

DIMOND WIRES

NEUMEYER & DIMOND

Established 1904

82-92 Beaver St. New York

New York Market Review

Office of the PAPER TRADE JOURNAL.
Wednesday, February 24, 1932.

Some improvement was noticed in the local paper market, which is exhibiting a stronger undertone. Demand for the various standard grades of paper is fairly active, and sales forces of the leading paper organizations are more optimistic than for some time past. Prices are steadier, in most instances.

Production of news print paper continues to be maintained in sufficient volume to take care of current requirements. Supplies are going forward to the publishers in fairly heavy volume. Although efforts are still being made to stabilize the industry, offerings of imported news print at low prices are responsible for unsettling the market.

The position of the paper board market is practically unchanged. Demand for box board is seasonal. The price situation continues unsatisfactory. There is some activity in the fine paper market and trading is becoming livelier. Tissues are moving in fair volume. The coarse paper market is displaying a steady trend and prices are firmer.

Mechanical Pulp

Conditions in the ground wood market are fairly satisfactory. Due to curtailment of output, both in North America and abroad, offerings are not excessive, and the industry continues in a sound statistical position. Shipments against contract are moving with regularity. Prices are generally holdng to schedule.

Chemical Pulp

Trading in the chemical pulp market is fairly active. No. 1 strong unbleached imported sulphite is displaying a firmer tone, and is offered at from $1.50 to $1.75, on dock, Atlantic ports. It is reported that strikes were called in eight important pulp mills in Sweden, beginning February 23, failing an agreement, and a general lookout in the Swedish pulp industry is anticipated, in some quarters.

Old Rope and Bagging

Paper mill interest in the old rope market is more noticeable. Demand for both domestic and foreign old manila rope is more buoyant than of late. Small mixed rope is moving at a steady pace. The bagging market is irregular. Roofing bagging continues fairly active, but scrap and gunny are quiet. Prices are nominal.

Rags

Demand for the various grades of domestic rags from the paper mills is somewhat restricted at present. While roofing rags are moderately active, other grades are in light request. Conditions in the imported rag market are practically unchanged and prices are still affected by the uncertainty of foreign exchange.

Waste Paper

Board mill demand for the lower grades of paper stock is well maintained. Strictly folded news and No. 1 mixed paper are in particularly good request and, with offerings limited, quotations on these grades are steady to firm. The better grades of waste paper are also holding up well and the outlook for the future is encouraging.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand is only moderately active at present although the out look for the near future is promising. Despite keen competition for desirable orders, prices are generally holding to formerly quoted levels.

Charles Forrest Moore

Judge Moore dead: Thus the January Bulletin of the New York Traffic Club, "As we go to press". In the very early days of the Club, at one of our feasts he addressed us, leading off with a story of reaching destination by a train exactly on time. The car porter explained, "Yissah, but dis am yistidday's train jist gittin' in". The traffic manager of the delinquent railroad the Judge had named, rose with a cheer that led the salvo of applause greeting the absurd yarn. I think that fairy story then and there tagged Judge Moore for the Club presidency that he adorned later.

Without pretence of being a rail expert, he knew railroad men from coast to coast, and north to Our Lady of the Snows, and was greatly liked and respected for character and integrity. In the paper manufacturing industry he was for many years of constructive worth. I knew him closely, and we occupied the same office for several years, he as counsel and I as traffic manager of a leading paper manufacturing company. Judge Moore was a man of force and character and of very great personal charm. He inspired and reciprocated strong worthy friendships. The afflictions that came to him he bore with courage that is beyond praise. Requiescat in pace.

C. H. TIFFANY.

Ruling on Hand Made Papers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 24, 1932—Frank Dow, Acting Commissioner of Customs, has sent a communication to the Assistant Attorney General at New York approving his decision to appeal from a ruling of the United States Customs Court holding that handmade paper having so-called laid lines is not decorated paper within the meaning of paragraph 1307 of the Tariff Act of 1922.

Wood Flong Corp. Elects Officers

HOOSICK FALLS, N. Y., February 23, 1932.—The annual meeting of stockholders of the Wood Flong Corporation was held this week at which officers and directors for the year were chosen. The following officers were elected: Benjamin Wood, chairman of the board; Jackson Townsend, president; Nelson Maynard, vice president, and Oliver N. Rathbun, vice president. The officers comprise the board of directors.

Arthur D. Little, Inc.

Chemists and Engineers to the Pulp and Paper Industry for over Forty Years

Laboratories and Experimental Mill

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Hardy S. Ferguson.....Member A.S.C.E., A.S.M.E., E.I.C.
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J. Wallace Tower .....Member A.S.C.E., A.S.M.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

20 plants to serve You

PAPER MAKERS CHEMICAL CORP.
Kalamazoo, Michigan

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Consultation	Paper and Pulp Mills
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Valuations	Steam Power Plants
Estimates	Plans and Specifications

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are rapidly expanding, so we are improving our facilities, and are prepared to ship promptly in Tank Cars, Multi-Unit Tank Cars (1-ton containers), or Cylinders (150 lbs. or 100 lbs.) from either Philadelphia, Pa., Wyandotte, Mich., Menominee, Mich., or Tacoma, Wash.

Inquiries and general correspondence should be addressed to our Philadelphia Office

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Incorporated 1850.

Widener Building, Philadelphia, Pa.

Representatives:
New York Pittsburgh Chicago St. Louis

Works:
Natrona, Pa. Philadelphia, Pa. Wyandotte, Mich. Menominee, Mich. Tacoma, Wash.

Hungerford Water Filters

Inversand Zeolite Water Softeners

(over 200 sizes)

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1932 Catalog and Sample of Zeolite Sent on Request

Hungerford & Terry, Inc.

CLAYTON, NEW JERSEY

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, February 24, 1932.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. The contract movement is normal. The pulp is quoted at from $42.50 to $45 per ton; while the powder is selling at from 3¼ cents to 3⅜ cents per pound, in barrels, at works.

powder are moving into consumption in good volume. powder are moving into consumption in good volume. Demand is fairly persistent. Prices are generally holding to schedule. Bleaching powder is quoted at from $1.75 to $2 per 100 pounds, in drums, at works.

CASEIN.—The casein market is easier. Domestic standard ground is now quoted at 7 cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8½ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is fairly active. Prices remain unaltered. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Contract shipments are moving in fair volume. Imported china clay is quoted at from $11 to $13 per ton; while domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Some improvement was noticed in the demand for chlorine. The contract movement is well up to average. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—No radical changes were reported in the rosin market. The grades of gum rosin used in the paper mills are quoted at from $3.65 to $3.95 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.75 per 280 pounds, in barrels, on dock.

SALT CAKE.—The salt cake market is moderately active. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—While the soda ash market is quiet at present, the contract movement is well sustained. Prices remain unaltered. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is exhibiting a fairly strong undertone. Contract shipments are moving with regularity. Prices are holding to schedule. Special paper making starch is quoted at $2.54, in bags; and at $2.81 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is fairly persistent. Prices are steady and unchanged. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Demand for talc is fairly active. Shipments against contract are moving with regularity. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine. Imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	3.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —
(Delivered New York)		
News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@27.50
Straw	34.50	@45.00
Chip	24.00	@27.50
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	32.50	@37.50
Sgl. Mla. Lt. Chip	32.50	@37.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	22.00	@24.00
Dry	22.00	@24.00
(F. o. b. Mill)		
No. 1 Domestic	20.00	@28.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.00	@ 3.00
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.75
Mitscherlich unbleached	1.55	@ 1.75
No. 2 strong unbleached	1.40	@ 1.50
No. 1 Kraft	1.50	@ 1.75
No. 2 Kraft	1.40	@ 1.50
Sulphate—		
Bleached	2.35	@ 2.50
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	2.00	@ 4.00
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.60	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	2.50	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	6.50	@ 7.00
New White, No. 2	5.50	@ 6.00
Silesias No. 1	5.25	@ 5.50
New Unbleached	7.00	@ 7.50
New Blue Prints	4.00	@ 4.50
New Soft Blacks	3.50	@ 4.00
Blue Overall	5.00	@ 5.25
Fancy	3.00	@ 3.50
Washables	2.75	@ 3.00
Mixed Khaki Cuttings	3.50	@ 4.00
Pink Corset Cuttings	5.00	@ 5.50
O. D. Khaki Cuttings	4.50	@ 4.75
Men's Corduroy	3.00	@ 3.50
New Mixed Blacks	3.00	@ 3.25

Old Rags

White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.75	@ 4.00
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.75	@ 5.00
New Light Oxfords	4.00	@ 4.25
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	2.00	@ 2.25
German Blue Linens	2.00	@ 2.10
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.10	@ 1.20
Domestic	1.15	@ 1.25
Wool Tares, light	1.00	@ 1.05
Wool Tares, heavy	1.00	@ 1.10
Bright Bagging	1.00	@ 1.05
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.70	@ 1.80
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.55	@ 2.75
Hard, white, No. 2	1.90	@ 2.00
White envelope cuttings	2.05	@ 2.15
Soft, white, No. 1	1.70	@ 1.80
Flat Stock—		
Stitchless	.70	@ .80
Overissue Mag.	.70	@ .80
Solid Flat Book	.60	@ .70
Crumped No. 1	.45	@ .50
Solid Book Ledger	1.75	@ 1.85
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.40	@ 1.50
Extra No. 1 old	1.05	@ 1.15
Print	.45	@ .50
Bogus Wrapper	.45	@ .50
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	1.00	@ 1.10
News—		
No. 1 White News	1.60	@ 1.65
Strictly Overissue	.35	@ .45
Strictly Folded	.25	@ .30
No. 1 Mixed Paper	.15	@ .20
Common Paper		Nominal

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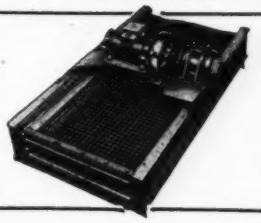
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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	05	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	1.75	@	1.85
No. 1 Soft White	1.60	@	1.65
Ledger & Writings	.85	@	.90
Solid Books	.75	@	.80
Blanks	1.30	@	1.35
Krafts	1.15	@	1.25
New Kraft Cuts	1.30	@	1.45
Manila Env. Cuts	1.60	@	1.75
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.40	@	.40
No. 2	.30	@	.40
Mixed Papers—			
No. 1	.30	@	—
No. 2	.25	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.05½	@	.06
New White, No. 2	.04	@	.04½
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.10	@	2.20
No. 2 Hard White	1.75		2.10
No. 1 Soft White	1.50	@	1.70
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.20	@	1.30
Writing Paper	.60	@	.75
No. 1 Books, heavy	.60	@	—
No. 2 Books, light	Nominal		
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.45	@	—
Container Manila	.35	@	.40
Old Kraft	.90	@	1.00
Common Paper	.20	@	—
No. 1 Mixed Paper	.15	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.25	@	.35
Overissue News	.40	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½

(F. o. b. Boston)

Southern Kraft	.03¼	@	.03½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	56.50
Straw Board, rolls	.009	—	@52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	27.50	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	52.50	@	60.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	67.50	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.50	@	1.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.65	@	.75
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	.80	@	.90
White Blank News	1.30	@	1.40
Kraft No. 1	—	@	.85
Manila	.90	@	1.00
No. 1 Mixed Paper	.15	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.40
Old Newspapers	.22½	@	.27½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.30	@	.32½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.70	@	.80
Manila Rope—			
Foreign	1.65	@	—
Domestic	—	@	1.50
Transmission Rope	—	@	1.00
Mixed String	.25	@	.35
Jute Rope	—	@	.85
Jute Carpet Threads	.75	@	.90
Bleachery Burlap	—	@	2.25
Scrap Burlap	.75	@	.85
No. 1 Scrap Burlap	—	@	.90
Scrap Sisal	.90	@	1.10
Scrap Sisal for shredding	—	@	1.25
Wool Tares, heavy	1.00	@	—
New Burlap Cutting	1.50	@	1.75
Australian Pouches	—	@	1.50
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging	.75	@	.85
Bagging No. 2	—	@	.40
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	—	@	.05¾
New White No. 2	—	@	.04
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.02¾
New Unbleached	.05½	@	—
Fancy	—	@	.03¾
Washable	—	@	.03½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	—	@	4.00
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	—	@	1.50
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	1.00	@	1.20
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.60	@	.70
New No. 1 White Shirt Cuttings	5.00	@	5.50
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.10	@	1.15
Old Linsey Garments	.65	@	.70

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10¼
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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CHARLESTON WEST VIRGINIA

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SIXTIETH YEAR

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